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ECONOMIC CONDITIONS IN MONTANA
REPORT OF THE GOVERNOR
1980

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Submitted to the 47th Legislature

Prepared by the
Governor's Office of Commerce
and Small Business Development

December 1980

State of Montana
Office of The Governor
Helena 59601

THOMAS L. JUDGE
GOVERNOR

December 15, 1980

To the 47th Legislature:

1980 was a disastrous year for Montana's economy. Although Montanans have suffered hard times before, through drought, depressed farm prices, and large scale layoffs in mining and manufacturing, these consequences are difficult to accept. They are particularly agonizing when they come as a result of external events (national, international, climatic, etc.) over which we have little control.

We must maintain a practical perspective of the role and scope of state government economic development policy. Within our free market structure the power of government to promote development is limited and we must recognize that fundamental fact in order to be effective. Within these limitations, we must be creative and explore new but realistic ways to encourage "balanced development" in areas that have under-utilized human and natural resource capacity and a commitment to economic growth. Under no circumstance should this effort be directed to promote economic activity that is either publicly unacceptable or environmentally unsound. We must not let the events of the past year erode the environmental safeguards that Montanans have proudly implemented in the last decade. We must, however, recognize the effect of the rules we pass on our economic environment as well as our physical surroundings.

Today, effective management in business, the community, or government, requires the ability to anticipate the future and adapt to changing conditions. In state government, we must continuously monitor developing economic patterns to assure that Montana is prepared to manage the problems and possibilities of tomorrow.

Sincerely,

Thomas L. Judge

THOMAS L. JUDGE
Governor

ACKNOWLEDGEMENTS

Special recognition is extended to Mike Micone, Director of the Governor's Office of Commerce and Small Business Development; to Professor Maxine Johnson, Director of the Montana Bureau of Business and Economic Research, and to Newell Anderson, Old West Regional Coordinator, for their cooperation and assistance in preparing this report. Recognition is also extended to Western Analysis, Inc., for economic research and document preparation.

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1 INTRODUCTION

The well-being of any locality, state, region, or nation is closely, but not exclusively, tied to economics. Anticipating the future of Montana's economy is important to decision makers in government and in private business. The events of the past year and one-half have vividly reinformed the fact that our economy is unsure and often influenced by events beyond our immediate control. The closing of the Anaconda Company's processing facilities, the loss of the Milwaukee Road, the drought in central and eastern Montana, large-scale layoffs in the timber industry, and a decline in tourism related to gas availability and price are reminders of how suddenly our lives can be changed as a result of national and international events or climatic conditions.

No business, no economy, no state can stand still. Change is inevitable. Montanans have shown conclusively that they desire to control change. The future of Montana belongs to the people; state government has the responsibility to help prepare a future that will enhance the health, welfare, safety, and economic security of all Montanans.

The purpose of this document is to provide an evaluation of Montana's economy; past, present and projected. Since the state is influenced by national economic activity and decisions, the first section is devoted to national affairs. An examination of the performance of Montana in terms of employment, unemployment, income, and population then is presented, followed by a series of closer looks at the performance and future issues in each of Montana's major economic sectors. Some long-term growth scenarios also are discussed.

The intent of this report is not to recommend directions but to summarize facts and issues that will aid the decision makers who will help shape the future of Montana.

2 NATIONAL ECONOMIC EVENTS

2.0 THE NATIONAL INFLUENCE ON MONTANA

Manufacturing and construction payrolls are more adversely affected than those of other industries during a recession (see Table 1). Those states which have a high concentration in manufacturing, particularly durable goods, tend to be most sensitive to a downturn in national business activity. Since the Western states, including Montana, have relatively less manufacturing and more service and government employment, the local influence of recession usually is less. The notable exception to this tendency is found in those Montana counties which have the wood products industry as their economic base. These areas are significantly influenced by national construction activity, which sharply declines during a recession. The dramatic job loss in the wood products industry (Figure 1) over the last year can be traced directly to national events and national economic policy. The main difference, then, between Montana and the more industrialized states is that recessionary impacts are limited to a handful of counties versus the whole state. This makes Montana, along with other states like Iowa, North and South Dakota, Nebraska, Wyoming and Idaho, relatively more insulated from business cycles than the national norm.

The year 1980, however, has been unusual. The combination of major job losses in rail, wood products and primary metals will result in no state-wide employment gain for the year, possibly even a modest loss; an event which would be without precedent. Although it is uncertain that the Anaconda decision was influenced by the most recent national downturn, many of the problems facing Montanans are national in scope. Good examples include inflation and slow productivity growth. Although solutions to these national problems are beyond the scope of state policy, an understanding of the probable causes of the problems is important to an understanding of Montana's economy.

Table 1.—Cyclical Swing in Nonfarm Payrolls by Industry, 1948:IV-1979:IV, United States

Rank[3]		Mean quarterly percent change, at annual rate		Cyclical swing	Percent of total nonfarm payrolls[2]		Cyclical swing in total nonfarm payrolls excluding the specified industry
		Expansions	Recessions[1]		1948	1979	
	Total nonfarm payrolls	8.5	1.7	6.8	100.0	100.0	....
1	Durables manufacturing	10.1	-7.5	17.6	20.2	17.7	4.0
2	Construction	9.1	1.0	8.0	5.4	6.0	6.7
3	Nondurables manufacturing	7.0	-.4	7.4	15.9	9.6	6.7
4	Mining	7.4	2.5	4.9	2.6	1.6	6.8
5	Transportation, communication, and public utilities	7.4	2.5	4.9	10.4	7.8	6.9
6	Federal Government	7.8	3.2	4.6	6.6	6.2	6.9
7	Wholesale and retail trade	7.6	4.5	3.2	18.3	17.1	7.5
8	Services	9.3	6.8	2.6	9.8	15.8	7.3
9	Finance, insurance, and real estate	8.9	6.6	2.3	3.9	5.5	6.9
10	State and local government	9.0	9.3	-.4	6.7	12.4	7.5

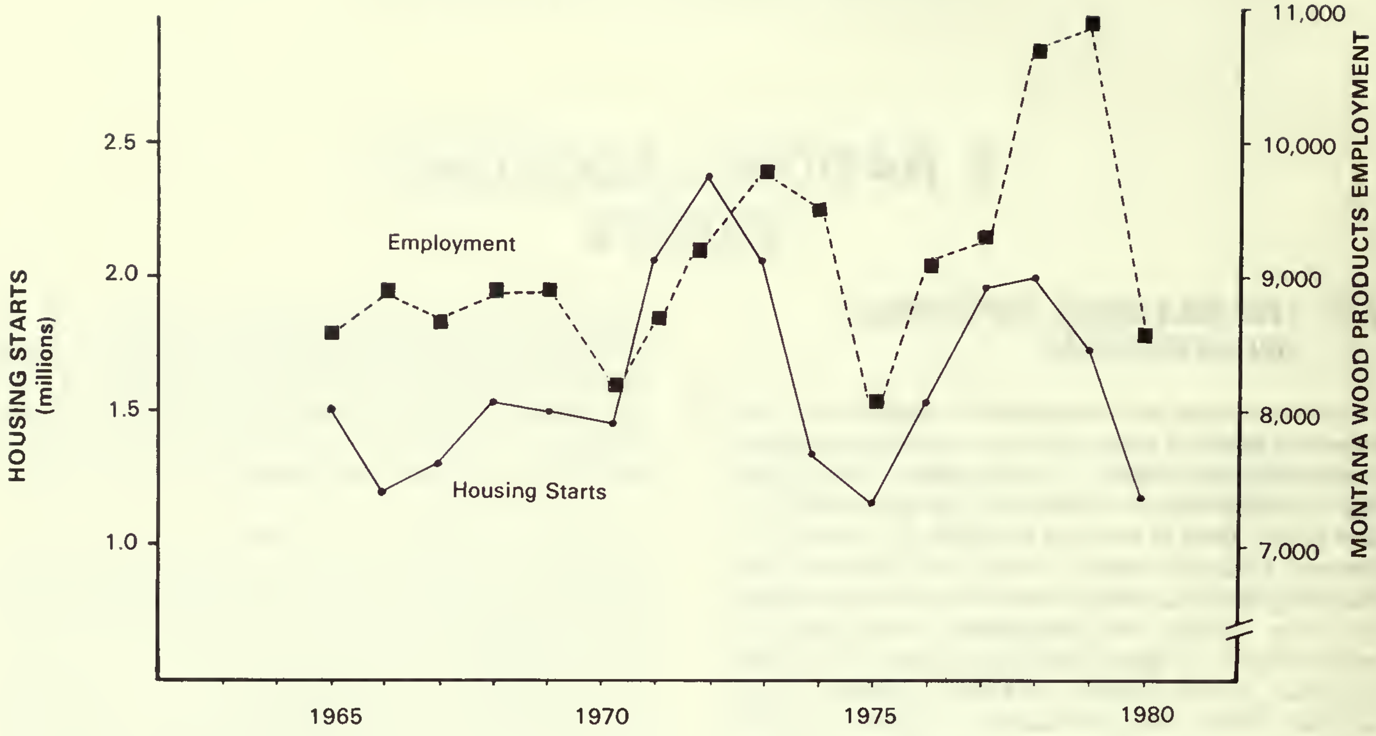
[1] Quarterly percent changes for 1957:IV-1958:I are excluded. Inclusion of these changes would distort the results, because the data from 1958:I forward reflect the 1976 national benchmark revisions, and the data prior to 1958:I do not.

[2] Columns do not sum to 100 percent because other nonfarm payrolls, which consist of payrolls in agricultural services, forestry, and fisheries and payrolls of U.S. residents working for international organizations, are not shown separately.

[3] Industries ranked by cyclical swing (column 3).

SOURCE: Survey of Current Business, May 1980.

FIGURE 1
NATIONAL HOUSING STARTS AND
MONTANA WOOD PRODUCTS EMPLOYMENT



SOURCE: Department of Commerce
Montana Department of Labor

2.1 CAPITAL, PRODUCTIVITY AND ECONOMIC GROWTH

Capital, broadly defined as those goods devoted to the production of other goods, represents perhaps the single most important determinant of the shape and evolution of the American economy. Productivity gains, both human and hardware, have been responsible, to a large extent, for our nation's high standard of living. Economist Edward Denison's exhaustive study of the sources of economic growth in the United States (1929-1957) suggested that as much as forty percent of the total increase in income (per person employed) was a result of productivity advances. The remainder of national output increases has been in the result of increases in employment. Later estimates by Denison and the Brookings Institution, over a different period of time (1948-76), confirmed the importance of capital and its impact on income growth. Estimates by Western Analysis covering the period 1960-1979 imply that approximately 35 percent of the real income gain was associated with increasing output efficiency. This model also dramatizes the effect of short-term productivity change on inflation rates, a problem directly related to declining productivity growth. (i.e., over two-thirds of the year to year change in the consumer price index can be explained by fluctuations in productivity).

Growth of American productivity was rapid, by historical standards, during most of the postwar period. But in the last half of the 1960's the rate began to slacken. Until 1974, this slackening was not particularly disturbing from the standpoint of long-term growth. Beginning in 1974, the situation became disturbing and also puzzling. The productivity trend turned far more adverse, and the influences responsible for the slowdown prior to 1974 were no longer sufficient to explain the decline below the earlier trend. The major productivity series—output per person employed, output per hour, and output per unit of input—all showed much the same pattern of retardation.

The trend rate of productivity growth in other major industrial countries, also has been declining in recent years. This decline, however, started earlier and has lasted longer in the United States than in other industrial economies. Table 2, which compares growth in output per worker for the allied countries, makes it evident that declines have occurred in all countries.

Table 3 shows growth in output per hour in the United States since the end of World War II. During the first 20 years after the war, output per hour for all employees in the private nonfarm business sector rose at an average annual rate of just under 2½ percent. From 1965 to

1973 the increase was 1½ percent. Since 1973 the annual growth of productivity has been less than 1 percent.

TABLE 2
Annual Growth in GNP Per Employed Worker In Major Industrial Counties, 1963-79

(Percent change per year)

Country	1963 to 1973	1973 to 1979[1]
United States	1.9	0.1
Japan	8.7	3.4
Germany	4.6	3.2
France	4.6	2.7
United Kingdom	3.0	.3
Italy	5.4	1.6
Canada	2.4	.4

[1] Estimate

SOURCE: Organization for Economic Cooperation and Development

TABLE 3
Labor Productivity Growth, 1948-79
United States

(Percent change per year)

Sector	1948 to 1955	1955 to 1965	1965 to 1973	1973 to 1978	1978IV to 1979IV
Private business sector	2.5	2.4	1.6	0.8	–2.8
Nonfarm	2.4	2.5	1.6	.9	–2.2
Manufacturing	3.2	2.8	2.4	1.5	(1)
Nonmanufacturing	2.1	2.2	1.2	.5	(1)

[1] Not available

NOTE: Data relate to output per hour for all employees.

SOURCE: Department of Labor, Bureau of Labor Statistics

There are several possible explanations for this relative decline. Charles Kindleberger, Ford Professor of Economics, points out that our industrial society may be maturing to a new state of development in which innovation is more subtle and perhaps crucial, and further suggests that productivity be measured by broader new standards. Jerome Wiesner, former President of MIT, suggests that the United States is beginning to drift toward a great emphasis on "replacement technology" rather than new ideas. He credits this shift to shortages of capital and investment incentives as a result of counterproductive patent policies, growing government regulations and changes in research support. His premise appears to be born out by relative investment patterns over the last 15 years (i.e.,—fixed nonresidential investment, research and develoment, and new product investment as a percent of GNP have been declining). Wiesner adds that this series of deterrents to the creation and use of new knowledge is a "social overhead (cost) which the nation cannot afford."

A similar view is held by John W. Kendrick of George Washington University, who associates the nation's decreasing productivity since the recession of the mid 1960's to seven major trends:

—less intensive use of plant due to reduced demands for U.S. products;

—the addition of many unskilled and part-time workers (inexperienced women and young people) to the work force;

—inflation which rendered depreciation allowances inadequate;

—increasing "non-productive" expenses to meet new environmental and safety laws;

—the prevalence of antibusiness and anti-establishment attitudes;

—reduced expenditures on research and development.

Other explanations for declining productivity growth include: rising energy prices; the increased age of the capital stock; increased government spending; lack of adequate business tax advantages on investment (i.e., 1969 revision in capital gains); labor morale/poor management; increasing concentration in service and trade related jobs; export of capital abroad (often making foreign goods less expensive); and, personal tax incentives to consume, not save. All of these factors detract from capital formation, resulting in lower capital/labor ratios. Since it is difficult to identify a single cause for the slowdown in productivity growth, the immediate prospects for a dramatic improvement in productivity are not good. Most recommendations for policies to improve productivity have been directed at incentives to increase investment in human and physical capital as well as in research and development. Since the slower growth of physical capital is responsible for only a part of the decline in productivity growth, efforts to stimulate business/fixed investment will not solve all our productivity problem. Still, improved investment performance is almost surely a necessary condition for higher productivity growth.

Without increased investment, productivity gains cannot be realized; without savings there can be no investment. Within the context of allied nations, Americans spend far more and save far less than our international neighbors who, not just by coincidence, have higher productivity growth. Table 4 and Figure 2 reveal this propensity for us to emphasize the present by trading-off the future.

Variations in growth rates are strongly related to national savings and hence investment as can be seen from Figure 2. Although only about 50 percent of the growth rate variation is explained by savings, the results can be sharpened significantly with the inclusion of such other variables as the income distribution and employment mix of the respective countries.

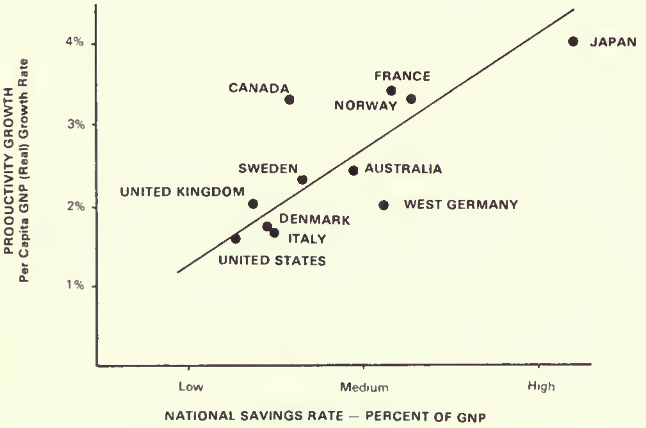
The issue of capital formation in the United States is nothing less than critical. As mentioned earlier, short-term variations in productivity determine our current inflation problem to a large degree. Conversely, to an equal degree our real savings rate explains a large part of our productivity problems. Personal per capita savings of $330 per year are too low to allow for needed capital formation.

TABLE 4
Savings As A Percent Of Total Disposable Income
1978

United States	4.9%
France	17.2%
West Germany	13.7%
Italy	23.1%
Netherlands	12.9%
United Kingdom	14.4%
Japan	21.2%
Canada	10.4%

SOURCE: United Nations Databook, 1979

FIGURE 2
PRODUCTIVITY GROWTH
Per Capita GNP (Real) Growth Rate



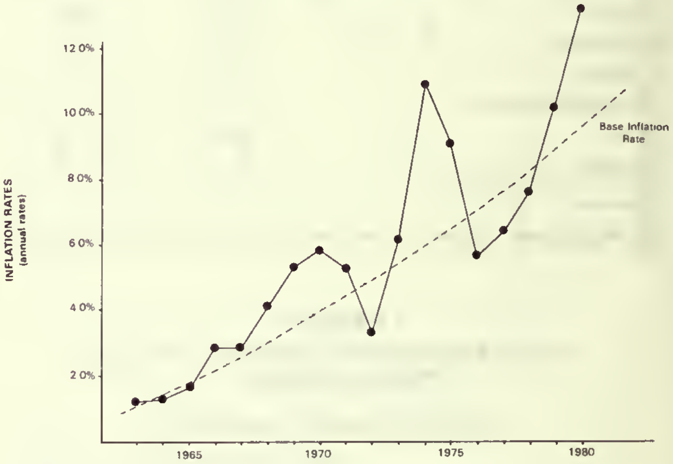
SOURCE: World Bank (1970-1975)

2.2 INFLATION AND INSTABILITY

The mid-1960's, a period of rapid growth with stable prices, produced a kind of economic euphoria. Many economists began to minimize the perils of economic fluctuations, inflation, or stagnation. More recent experience has demonstrated, however, that we cannot take for granted our freedom from business cycles. In 1980 the burdens of rapidly rising prices, of unemployment, and of slow recovery from a recession are now more freshly and painfully appreciated.

Everyone now feels the increasing burden of inflation. Of the total price increases since 1929, two-thirds of the change has occurred since 1970. Beginning with 1929, it took 40 years for prices to double, the next doubling took slightly over 10 years and, if the present trend continues, prices will double again in the next 7 years. Inflation rates since the early 1960's are shown in Figure 3.

FIGURE 3
INFLATION RATES
(Annual Increase)



SOURCE: Department of Commerce

Economists, and practically everyone else, debate the "livability" of inflation, its overall consequence, and its effects on particular groups. People also hold divergent views on the proposition that inflation is like an epidemic disease, which must be stopped, else it will expand, grow more severe, and overwhelm everything.

The general price increases of inflation place burdens on those who cannot prepare for them—and preparing for them is at best quite difficult. People with relatively fixed incomes suffer from loss in purchasing power when prices rise. That includes people on annually determined salaries which change slowly. It also includes older people living on pensions or annuity incomes which do not change at all when prices rise.

Creditors also suffer—people who have loaned out money, for example, by purchasing private or government bonds or putting money in a savings account (a loan to the bank). Why? Because a loan paid back with dollars with lower purchasing power for real goods and services represents a loss in wealth. Think, for example, about someone who bought a ten-year Series E federal savings bond in 1960 and held it to maturity. He found in 1970 that the purchasing power of the principal he had loaned to the government had fallen 29.8 percent. That is the amount by which the consumer price index, or cost-of-living index, rose from 1960 to 1970. The loss would have been much greater during the 1970-1980 period.

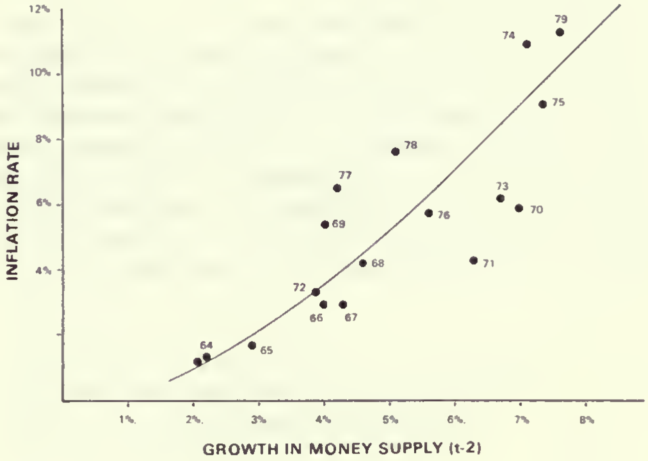
On the other hand, debtors and people whose incomes increase fairly quickly as prices change benefit from inflation. He pays back the mortgage loan on his house with dollars which have substantially less purchasing power than the dollars loaned to him ten years ago. people who own businesses that adjust their prices quickly can maintain—or even better—their position as their profits rise along with prices.

The inflationary psychology of "buy now, it will cost more next year" simply fuels the engine of inflation, driving it faster and faster each succeeding period. Going into debt to buy at today's prices has become an increasingly popular method for both the public and private sector to maintain or increase living (or expenditure) standards in the face of inflation. Average gross weekly real earnings per worker are the same today ($94.85) as they were in 1962. Since 1962, however, consumer and federal real debt has increased approximately 80 percent. The lion's share of this new debt resulted from consumer expenditures . . . credit and home mortgages. Federal real debt increased 19 percent over this period while consumer debt increased 124 percent. Business debt (stocks, bonds, and loans) is not included in this comparison because such debt is investment rather than consumption oriented. Although state and local government debt is expanding rapidly, government debt is no more inflationary than all those folks who bought new cars and houses within the last decade, but perhaps couldn't quite afford them.

Federal debt, as a percent of real GNP, has been relatively stable since 1970 and is substantially less now than in the previous decades. It has actually fallen from 58 pecent of GNP in 1960 to 35 percent today. That is not to say that the federal government does not contribute to inflation by spending. Within the last twenty years only one federal budget was balanced. But, relative to consumer debt, the inflationary impact is probably much less. Government contributes to inflation in more subtle ways; through regulations, requirements, trade restrictions, price supports, and money supply manipulation.

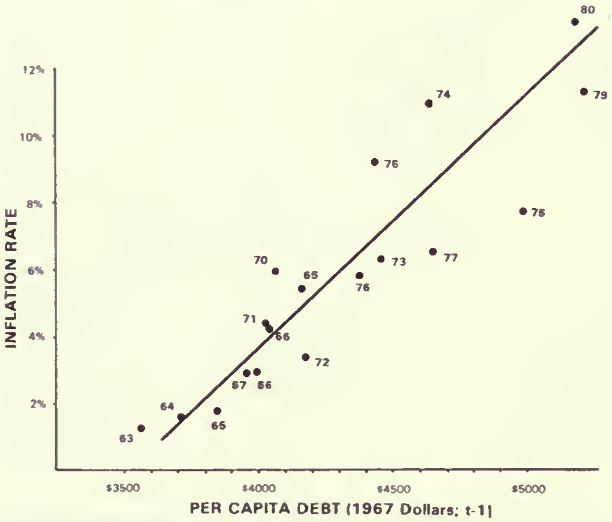
The Federal Reserve Bank typically has increased the nation's supply of money much faster than real output of goods and services. For example, between 1965 and 1979 average yearly money supply growth was 5.7 percent, while yearly real GNP growth averaged only 3.4 percent. Increasing money growth faster than real output logically adds to prices . . . more money with a fixed amount of product drives up prices. The relationship of money supply growth and inflation is shown in Figure 4. Figure 5 shows how debt and inflation are related—the other side of the coin, since money supply growth allows debt to occur. In this instance, debt includes net federal and consumer borrowing, i.e., home mortgages, automobile loans, credit cards, and other forms of installment buying.

FIGURE 4
INFLATION AND THE MONEY SUPPLY



SOURCE: Department of Commerce

FIGURE 5
INFLATION AND DEBT



DATA SOURCE Department of Commerce
Bureau of Labor Statistics

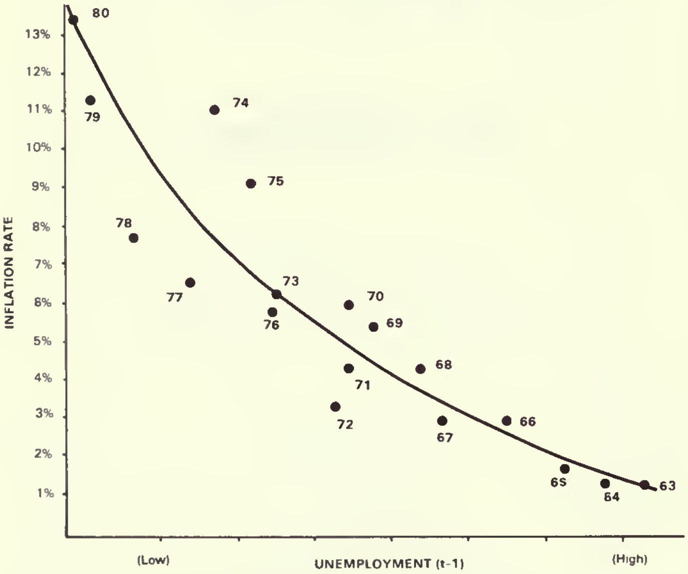
Fast growth in the money supply helps to keep interest rates down. And, low interest rates allow borrowing to occur at a faster pace than high interest rates would permit. This results in a very important dilemma; a policy trade-off of heroic proportion:

- Should the Federal Reserve bank allow money supply growth to accelerate . . . stimulate debt and consumption adding jobs to the economy, but fueling inflation?

- Or, should money supply growth be restrained . . . driving up interest rates . . . reducing borrowing and consumption, putting people out of work, but slowing inflation?

This trade-off between inflation and unemployment is shown in Figure 6. The unemployment rate in this case has been adjusted for productivity growth (output per worker) and changes in average hours worked. The relationship suggests that as more workers are employed (low unemployment), prices tend to increase faster than when few workers are employed (high unemployment). This means that when more people are working, and hence spending, prices go up.

FIGURE 6
INFLATION AND UNEMPLOYMENT
(Modified Phillips Curve*)



DATA SOURCE. Western Analysis

*NOTE: Uses population rather than labor force base and adjusts employment for changes in productivity and average hours worked as opposed to normal definition of unemployment

If the growth in the money supply is allowed to fall, some additional unemployment may result. For example, in 1979 the money supply growth rate was only 3.9 percent, much lower than the previous year's rate of 7.8 percent. This reduction resulted in much higher interest rates in 1979 and 1980, adding considerable cost to buying a new house (up about 25 percent on a monthly basis) resulting in a sharp drop in construction, in the demand for wood products, and eventually causing a major drop in wood products employment in western Montana. If money growth is accelerated, we all pay an inflationary premium, betting that we will reap the benefits of a short-term employment gain. Usually, it doesn't work this way; prices go up with no other effect.

Many economists, often called monetarists, suggest that the boom and bust cycles of business may be smoothed out by more responsible monetary policies, i.e., don't let the money supply grow faster than real output. This is a bitter pill to swallow at times (particularly for national politicians), since slower money growth means less debt, and less consumption and job growth in the short-run. Inflation, on the other hand, seriously erodes family income. The trade-offs are quite real.

2.3 OTHER THEORIES OF INFLATION

Economics is not a precise science. As a result there is considerable debate about the causes and solutions of inflation and unemployment. The inflationary pressures of debt and monetary expansion can be described as a situation where consumer demand outstrips supply. Obviously, the other aspect is, what happened to supply? One group of economists locates the initiating factors of inflation on the supply or sellers' side. According to one "wage-push" theory, the impetus toward price increases emanates from the "excessive" wage increases demanded by labor and given by business. According to this view, whenever wage increases outrun labor productivity, inflation will occur. Another variation of this theme pertains to natural resources. As the supply of oil is used up world-wide, prices obviously must increase. With a fixed amount of "stuff" produced by labor or available in the form of natural resources, the bounds of consumption are clearly defined at any one point in time. One important caveat of this theory is ..... Do not blame inflation on labor alone. Management would not increase wages if it could not pass the increases on to consumers. In fact, some people say that the real problem is lack of competition on the supply side. If businesses were more aggressive competitors, they would not give in so easily when faced with wage demands. When each firm can count on its rivals to fall into line on prices and wages, it is argued, no one firm really fights to keep costs down. Another objection to wage-push reasoning—in fact to the whole supply-push argument—is that the price increase would not take place if the money supply did not increase to validate it.

Furthermore, if the price of an item goes up, there generally is a good reason for it. Example . . . farm prices go up when supplies are short; the farmer is not to blame but he often is blamed. Individual farmers do not restrict supply, they simply can't; there are too many of them. OPEC pricing of oil is, however, a very different situation . . . they can do what they like in the short-term. But, oil prices, although important, do not necessarily control the destiny of the world, a fact well understood by OPEC. There are many alternatives, more expensive perhaps, but, nevertheless, quite real. Who, then, is to blame for inflation . . . everybody. Who suffers? . . . everybody. Is there any way out?

The most common answer is technology and productivity gain. Our world today is full of examples which attest to the influence of science. How one regards the benefits and costs of such change is largely a matter of personal perception. On the positive side, technological change has improved working conditions by eliminating many, perhaps most, dirty and menial jobs, permitted the reduction of working hours, dramatically increased the level and type of trade, and added many new dimensions to our lives. This affluence has not been without cost. Self-sustaining growth necessitates technological development and technology begets growth in a never ending cycle. Some would argue, with this or that new tool, the world could be molded into almost any desired shape—except back into its original one.

The balancing of jobs and income and other favorable aspects of technology against air and water pollution, the closing of plants made obsolete by technological change throwing whole communities into distress, and so on, represent some of the most pressing issues of our time. Ironically, technology properly used may resolve many of our economic problems, or improperly used (or regarded as unimportant) may sink the ship. Although most people would agree, on balance, that technology has been beneficial, no one would claim that a price was not paid for the gain.

2.4 AVOIDING QUICK FIXES

Government policymakers have not been very successful lately in dealing with the ups and downs of the U.S. economy. Part of the problem is that it is very difficult to predict when and how severe a recession will be. As a result, the government has treated recessions "inappropriately as short-term emergencies" and its attempts at quick fixes "too often have been too late and too ineffective." These thoughts of the Joint Congressional Economic Committee point to a major problem with national policy: inconsistency.

One month the headlines suggested that a great deal of attention be given to a balanced federal budget in fiscal 1981. Less than 9 months later, the focus had shifted to adding $30 billion to the deficit via a tax cut. A tax cut often is touted as the magical solution to our economic problems, but a tax cut is not always what it seems. Although a real tax cut would be appealing, most of the tax cuts offered simply reduce revenues, not expenditures, and increase deficits. The public merely substitutes the inflation tax for explicit taxes. Consistency also is needed in federal monetary policy; policy must be geared to long-term stability, not to the more expeditious practice of doubling money growth when interest rates start climbing. Long-term programs geared to stimulation of savings, capital investment, and productivity appear to be much wiser courses of action.

Unlike the federal government, state government does not possess the policy and programming tools necessary to effect economic events such as interest rates, prices and employment. This fact must be accepted and state activities must reflect that reality. Montana too must avoid the quick fix. Factors within state control—taxes, for example—usually rank far down the list in the minds of managers making plant location and expansion decisions. More important factors are those that have a greater impact on profits: resource availability and accessibility to markets. The recent increase in the demand for Montana's agricultural and energy resources changes our comparative advantage and in light of these factors Montana must dedicate our efforts toward realistic development opportunities which build upon these advantages. Most importantly, Montana policy must be consistent and enduring.

3 MONTANA'S ECONOMY

3.0 AN HISTORICAL PERSPECTIVE

Most of Montana—east of the Rocky Mountains—was part of the 1803 Louisiana Purchase. Heavy immigration to Montana did not occur until the discovery of gold in the early 1860's. Coinciding with the "gold-rush" days, Montana Territory was created in 1864 to provide accessible government for the early populace.

Within a decade, many of the great placer camps began to falter and the mining emphasis shifted to silver and copper production, underground methods, corporate organization, and a more orderly business environment. As a result of these innovations, other Montana industries began to show significant gains. Agricultural development was hastened in response to high prices for food in mining camps and military installations, at least in part related to the cost of transporting food into Montana. For similar reasons, the wood products industry expanded to meet the growing need for mine and railroad timbers and lumber to build homes.

As the national demand for the products of mining and agricultural enterprises continued to grow—very likely the direct result of the railroads—Montana was slowly to become known as a major exporter of raw materials and products. Population continued to swell through increased homestead and mining activity. And, in 1889, Montana was admitted to the Union as the forty-first state.

Although known as the Treasure State, life was clearly far more difficult during this era than we probably can imagine today; harsh weather, small land-holdings, and hazardous working conditions no doubt left many newcomers worse off than when they had left the East. Hard times also were felt in Montana cities.

By the early 1900's, Butte and Helena had population levels of nearly 60,000 and 20,000 respectively. Butte developed a coterie of millionaires and Helena had the reputation of having more millionaires per capita than any city in the world. This was to change, because the future of Butte was tied to copper and Helena's to gold. Gold reserves were depleted gradually and Helena's population declined for several decades. Butte's growth cycle, perhaps not yet ended, was almost entirely related to copper demand and to more efficient mining techniques requiring fewer and fewer workers. At one point during this era, the Anaconda Company employed more than 13,000 people, amounting to about three-fifths of the wage earners in the entire state. (Today they employ approximately 3,300 workers.) The technology of the day was to mark one of the darker periods of the state's history—an image which still is remembered. These early phases of development abound in examples of rapid growth, decline, and economic/environmental distruption. The events of the past year in Anaconda and Great Falls again make us mindful of the devastating effects of economic "bust."

Montana, now ninety years a state, still is new in point of settlement and organization, and its principal economic role continues to be the specialized one of providing raw materials for the national marketplace. The state's economy has been largely resource, rather than market-oriented as a result of its natural resource base, and its distance from population centers. The importance of manufacturing products for final consumption has been relatively low.

Montana's recent economic performance has been favorable (even though most natural resource industries are slow growth industries by national standards). Employment growth since 1970 has been sufficient to more than offset the significant outmigration of Montanans that plagued the state during the 1950's and 1960's. During that period of Montana's economic development, many young and talented individuals were forced to leave the state to search for those employment opportunities which Montana could not offer. Today, however, the situation is different; people are moving to Montana, not leaving. The primary reason for this reversal of population trends has been more rapid employment growth. During the past decade, employment growth has been conservatively double that which occurred in the 1960's.

Montana still is heavily reliant on the resource-based industries (even though nearly all of the recent employment expansion, and a large share of the income increase, have been found in the service and trade sectors). Without any doubt, these industries (agriculture, mining, and wood products) have provided the basis for the long-term development of the state, and in all likelihood, it is these industries which will determine the future of Montana. Concentration in these industries has not been accidental, but rather is the result of the natural market forces.

3.1 EMPLOYMENT

The most regularly gathered and reliable data concerning Montana's economy are employment statistics. Changes in employment levels and in the relative importance of industries in employment terms gives a good idea of the direction of Montana's economy.

Total employment has grown much faster in the 1970's than during the previous decade. In the 1960's, Montana's growth was about one-half the national rate. But, since 1970, the state's employment gain has significantly outpaced the national increase; clearly a healthy economic sign for Montana.

The recent growth in employment, however, has not been spread evenly across all economic sectors. All of the increases have been experienced in trade and service-related expansion. In order to analyze this change in emphasis, it often is useful to divide industries into "basic" and "nonbasic" categories. Basic jobs bring money into the region, generally through exports. Nonbasic jobs are assumed to draw their livelihood from the income produced by the basic employers. Table 5 and Figure 7 show this relative shift in the composition of Montana employment since 1960.

TABLE 5
Employment in Selected Montana Industries (thousands of persons)

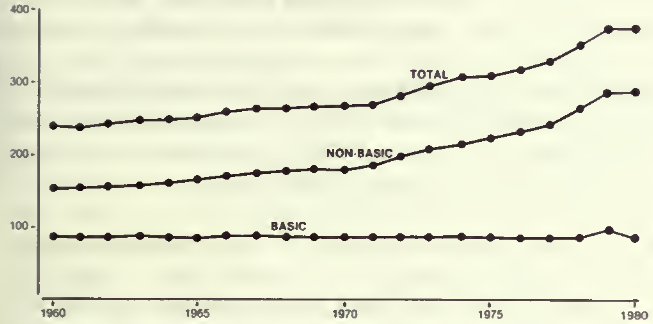
Industry	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980**	Change 1960 1970	Change 1970 1980
BASIC															
Agriculture	39.0	35.2	36.1	35.0	33.1	36.3	38.8	34.8	33.4	34.5	33.0	32.2	32.0	-2.9	-4.1
Mining	7.4	7.5	6.6	5.4	6.3	6.5	7.1	6.4	6.1	6.1	7.0	7.6	7.2	-0.8	.6
Metal	4.5	4.6	4.0	2.9	3.7	3.8	4.0	3.1	2.4	2.0	2.0	2.0	1.5	-0.5	-2.5
Coal	n/a	n/a	n/a	0.2	0.3	0.3	0.4	0.7	0.8	0.9	1.2	1.2	1.3	n/a	1.0
Oil & Gas	2.2	1.8	1.8	1.6	1.6	1.6	1.8	1.8	2.1	2.6	2.9	3.3	3.3	-0.4	1.5
Other Mining	0.7	1.1	0.8	0.7	0.7	0.8	0.9	0.8	0.8	0.6	.9	1.1	1.1	0.1	.3
Manufacturing	20.4	22.2	23.9	24.0	24.5	24.8	24.5	22.1	23.7	24.2	26.3	26.9	23.6	3.5	-.3
Wood Products	7.3	8.6	8.2	8.7	9.2	9.8	9.5	8.1	9.1	9.3	10.7	10.9	8.5	0.9	.3
Primary Metals	3.8	3.6	4.7	4.1	3.9	3.4	3.4	3.3	3.3	3.2	3.2	3.3	2.4	0.9	-2.3
Food Products	4.3	4.3	4.3	4.2	4.2	4.3	4.1	3.5	3.7	4.0	4.0	4.1	4.0	0.0	-.3
Other Mfg.	5.0	5.7	6.7	7.0	7.2	7.3	7.5	7.2	7.6	7.7	8.4	8.6	8.7	1.7	2.0
Railroad	9.0	7.5	6.6	6.4	6.4	6.3	6.5	6.1	6.1	6.3	6.8	7.4	7.1	-2.4	.5
Federal Government, excluding military	9.9	12.1	11.9	11.9	12.3	12.2	12.9	14.2	13.7	14.1	13.6	13.3	13.0	2.0	1.1
Total Basic	85.7	84.5	85.1	82.7	82.6	86.1	89.8	83.6	83.0	85.2	86.7	87.4	82.9	-0.6	-2.2
NONBASIC															
Transportation, Communications & Utilities, excluding Railroad	10.0	10.0	10.8	11.3	11.5	12.4	13.0	12.9	13.4	13.9	14.9	15.8	16.3	0.8	5.5
Construction	11.0	12.0	11.0	11.7	11.4	13.0	13.5	12.1	13.8	15.6	16.7	15.3	15.6	0.0	4.6
Trade	40.5	42.9	48.3	50.1	53.5	56.3	58.8	59.1	63.7	66.3	72.2	74.5	74.9	7.8	26.6
Services*	30.0	33.3	41.8	43.8	46.3	49.8	52.4	54.5	58.6	60.7	64.8	67.4	68.7	11.8	26.9
State & Local Gov.	28.6	33.8	40.7	42.5	43.1	43.2	45.3	50.7	52.0	56.5	58.1	56.8	58.0	12.1	17.3
Non-Farm Proprietors & Other	30.2	30.0	23.7	22.9	28.9	27.8	29.1	29.1	27.5	24.8	32.6	33.8	34.3	-6.5	10.6
Total Nonbasic	150.3	162.0	176.3	182.3	194.7	202.5	212.1	218.4	229.0	237.8	259.3	263.6	267.8	26.0	91.5
TOTAL	236.0	246.5	261.4	265.0	277.3	288.6	301.9	302.0	312.0	323.0	346.0	351.0	350.7	25.4	89.3

SOURCE: Montana Department of Labor and Industry, Employment Security Division

*NOTE: Includes Employment in Finance, Insurance, and Real Estate

**NOTE: Estimate by Western Analysis, Inc.

FIGURE 7
CHANGE IN EMPLOYMENT COMPOSITION
(Thousands)



SOURCE: Montana Department of Labor and Industry, Employment Security Division

Overall basic employment generally has been stable in Montana and throughout the nation for the last several decades. Substantive job losses have occurred in agriculture, metal mining, and primary metal processing, while other basic sectors have expanded employment, most notably coal, oil and gas, and wood products. For the most part, the gains and losses have averaged out, resulting in a near constant level. It should be noted, however, that basic employment would have declined slightly had it not been for growth in federal government, a sector which is included in the basic category primarily because Montana has numerous federal employees engaged in natural resource management. The 1980 basic employment levels are down largely as a result of temporary declines in wood products and the effects of the copper strike on yearly mining employment. Losses in primary metals and rail employment during the year appear to be permanent.

The nonbasic category presently employs far more workers than the basic group of industries, by a factor of approximately two and one half to one. Although nonbasic growth has been much faster in Montana than the national average since 1970, the state still has relatively fewer service and trade-related jobs than the U.S. norm, a common occurrence for rural states. But the state is catching up rapidly, as evidenced by the addition of new retail stores, restaurants and services. Possibly, Montana's surge of nonbasic development is taking place all at once. That is, until 1970 this type of growth was considerably slower here than elsewhere, but has since accelerated to nearly double the national figure.

This uneven growth—basic versus nonbasic—may be puzzling to those who believe that service and trade jobs can come only as a result of basic industrial development. It is important to remember that at the turn of the century, the majority of the national labor force was employed in some form of primary production, i.e., food, lumber, metals, etc. These industries have experienced rapid productivity gains, requiring relatively fewer production workers for an increasing amount of physical or real dollar output. Also, overall income has increased, both in Montana and nationally, bidding up the demand for nonbasic activity. As a related phenomenon, the state and nation became increasingly urbanized.

More recently, there has been a large increase in the labor force as a result of a change in the age structure of the population. The "baby boom" has resulted in more people entering the labor force than ever before. This age effect, coupled with the fact that more women are working outside the home, has greatly expanded the number of individuals seeking employment. The basic industries, where productivity has grown the most, have been unable to provide employment for these new workers. The service and trade sectors have not experienced this rapid growth in productivity and have largely absorbed these individuals. Simultaneously, consumption of the output of the service and trade sectors has grown. Public and private sector services more often are substituted for activities once provided in the home. Although it is true that many of the positions offered in these sectors have been part-time, even after adjustment to full-time equivalents, the rate of increase in employment has been great.

Purchases by both businesses and final consumers over time have shown a significant increase in "nonmaterial" consumption and employment. Furthermore, it is likely that this pattern of growth will hold in the future. Specifically, this means that it is possible for an economy to grow, be it local, state, or national, with a constant basic employment level. This does not detract from the fact that the basic sectors are vital to the economic health of an area. It merely reflects significant changes in our society's underlying structure. Clearly, a change in basic income or employment significantly affects an area, but not as much as the traditional multiplier concept would suggest (see Figure A-1 in the Appendix). A recent study by Western Analysis suggests that the average basic employment multiplier for Montana is rather low; approximately one new nonbasic job for every new basic job. This impact is much less than the commonly accepted multiplier in the 2.00-3.00 range. (See Appendix, Table A-2 for comparison.)

3.2 UNEMPLOYMENT

The unemployment rate probably is the most frequently used statistic in economic discussions and perhaps the most misunderstood. Its calculation depends on two factors: the level of employment and the total size of the labor force. Data for the former are gathered regularly and can be accurately determined. But the "size of the labor force" is difficult even to define and its calculation requires many assumptions; e.g., who is actively seeking employment? The estimation methods change frequently and differ between states; thus, comparisons over time and with national figures are made with some risk.

Since 1970, national unemployment has averaged about six percent of the labor force. The average rate in Montana has been slightly higher (6.6%) or slightly lower (5.4%) depending upon the estimation procedures used. However, given the relative error of estimation methods, it is "reasonably" safe to assume that unemployment in the state is generally very close to the national average. See Table 6 for a comparison of national and Montana rates.

It is important to note that the unemployment rate in the state and throughout the nation has increased in the last several decades. This general rise has been primarily the result of the tremendous growth in the labor force since the mid 1960's. As mentioned earlier, the "baby boom" has resulted in more people entering the labor force than ever before. This effect, coupled with the fact that more women are seeking employment outside the home, has greatly expanded the labor force. The basic industries, where productivity has grown the most, have not been able to provide employment for these new workers. And, as a consequence of increasing income and a rapidly expanding supply of workers, the service and trade sectors have absorbed most, but not all of these new entrants into the labor force. Therefore, total employment growth has been somewhat less than the increase in the number of individuals seeking jobs, resulting in a long-term increase in the overall unemployment rate. But, as the impact of the "baby boom" fades, unemployment rates should improve.

TABLE 6
Unemployment Rates for Total Civilian Labor Force

	Annual Average Unemployment Rates	
	Montana	U.S.
1970	4.3	5.0
1971	4.8	6.0
1972	4.8	5.6
1973	4.8	4.9
1974	5.2	5.6
1975	6.4	8.5
1976	6.1	7.7
1977	6.4	7.0
1978	6.0	6.0
1979	5.1	5.8
1980	6.1(E)	7.6(E)

SOURCE: United States Department of Labor

The general rise in unemployment, shown in Table 6, is not caused by generally worsening business conditions. In fact, total employment in the United States has increased at a faster rate since 1970 than during the previous decade. The Montana economy has performed even better in terms of providing jobs for its citizens. Jobs have increased at an annual average rate of 3.4 percent since 1970 compared with only .8% per year during the period 1955-1969. Rising unemployment, in view of the relatively rapid increase in new jobs, poses some legitimate questions about the usefulness of the unemployment rate as an indicator of "economic well-being" over time. Consider the following changes which have affected the unemployment rate.

- The percent of the total U.S. population seeking work has increased from around 38% in 1960 to over 46% in 1977. This means that an additional 8.3 million people are looking for work because there are more individuals of working age and also more who want to work today than has historically been the case.

- This has been caused by a more than proportional increase of women and youth in the civilian labor force. In 1960 women comprised 33% of the employed civilians, in 1979 the figure was 42%. In 1960 youth aged 16-19 years comprised 6.3% of the employed; in 1979 they had jumped to 8.3% of the total.

Historically, women and youth have tended to have higher than average unemployment rates. For the last 15 years the unemployment rate for women has ranged between 40% and 80% higher than that for men. During the most recent business downturn, however, the male and female rates were about equal. The unemployment rate for youth has tended to be three times that for men and women combined.

Young people tend to have higher unemployment rates because they are less experienced, lack necessary skill and training and often are less firmly attached to the labor force than persons of prime working age. Women, in particular second wage earners in a family, have a tendency to change jobs more frequently than the primary wage earner and to take longer to find new jobs. This is partly due to the greater scarcity of job opportunities for women than for men. Additionally, many women may have been forced to take jobs as a result of falling real family income.

Changes in the structure of the nation's economy also have contributed to the more intractable unemployment problem we face today. There has been a substantial increase in jobs in the service sectors of our economy. In 1960, 37 percent of our nation's nonagricultural wage and salary jobs were in the following three nonbasic sectors: wholesale and retail trade; finance, insurance and real estate; and services. By 1977, that figure had risen to 47 percent. Usually, these jobs have a shorter work week, due to the many part-time positions, and also a higher rate of turnover than other types of jobs. In fact, the number of employees in part-time positions has increased 100 percent since 1958, while full-time jobs have increased only 50 percent. Women and youth comprise a disproportionately high number of job holders in these three nonbasic economic sectors.

National data also show that recent increases in the number of unemployed have been accompanied by substantially smaller fluctuations in total hours worked, indicating that much of the increase in unemployment has been due to layoffs of part-time employees in the service sectors.

A final contributing structural factor in the unemployment problem is the increase over the past 10 years in the average duration of unemployment. Because the unemployment count is made on a certain date, as the average duration of unemployment increases, so also will the unemployment rate after a period of adjustment.

Since 1968, the average duration had increased from 8 to 14 weeks. This has been due to three principal reasons: (1) our economy has experienced periods of unusually rapid structural change (e.g., the energy problem and the end of the Vietnam War; (2) job search times have increased due to the rising expectations of new workers and to greater heterogeneity of the population; and (3) the costs of search have been reduced due to improvements in unemployment compensation and other income transfer programs. For these reasons, the use of the unemployment rate as an indicator of national and local economic conditions has come under increasing criticism. Critics have argued that (1) measurement difficulties contribute to a substantial margin of error; (2) the concept of unemployment is less precise than is commonly believed; and (3) the unemployment rate is an inadequate indicator of labor market conditions.

Major difficulties exist in deriving a total unemployment rate from raw data on claimants under the states' unemployment insurance (UI) programs. Estimates must be made of persons who have exhausted UI benefits but remain unemployed, of persons who are unemployed but disqualified from receiving benefits, and of persons who were unemployed but delay or never file claims. More significantly, the UI count must be modified by estimates of unemployed workers in non-covered industries, new entrants to the labor force and reentrants. Much controversy surrounds the procedures used for making these important estimates.

Secondly, the monthly counts are adjusted annually to conform with the current population survey (CPS), a national survey of approximately 65,000 households conducted for the Bureau of Labor Statistics. However, CPS figures are built on a very small sample of Montana households and admit to a certain level of error permitted under the adjustment procedure.

A number of conceptual difficulties also surrounds the definition of unemployment used in calculating unemployment data. The definitions make no distinction between unemployed persons seeking part-time or full-time work. The former should be considered partly unemployed rather than fully unemployed. Further, persons employed part-time but desiring full-time work should be considered as partly unemployed, but instead are counted as fully employed. Third, a simple count of the unemployed does not take into consideration underutilization of our labor resources. This occurs when an individual is employed in a job which does not make full use of his skill. This should not necessarily be considered a failure of the labor market, for example, when the person may resist moving to another location where a suitable job may be available or when the person may, at the time, desire the job demanding less skills.

An additional problem associated with the concept of unemployment arises from the existence of so-called "discouraged workers". Individuals neither employed nor unemployed are considered as not in the labor force. A small number of these people report they are not seeking a job because they believe that no work is available rather than because they do not want a job. Although some of these individuals may have withdrawn from the labor force simply because they are being very selective about a job they would accept, it also is true that some are genuinely unemployed and should be included in the unemployment count.

Finally, participation rates will vary during periods of economic expansion as opposed to periods of economic contraction. Many persons losing their jobs will leave the labor force rather than search for new ones during periods of recession. Such persons will not be counted among the unemployed. Conversely, during periods of business expansion, the availability of jobs draws individuals into the labor force and causes the increase in the number employed to exceed the decline in the number unemployed. Hence, movement in the unemployment rate will tend to understate underlying variations in economic activity. For example, between July, 1977 and the expansion beginning in March, 1975, 84 percent of the employment increase was due to an increase in the civilian labor force, as opposed to an absolute reduction in unemployment. This contributed to the unemployment rate remaining at severely high levels during this period.

As a result of these changes, it is difficult to say whether unemployment is "really" higher than it was ten or twenty years ago since our current rates are measuring a very different phenomenon. After adjustments are made for average hours worked, productivity per worker, and demographic waves, it is "possible" that unemployment today might even be lower.

3.3 COUNTY UNEMPLOYMENT

There are substantial variations in the rate of unemployment at the county level. For example, during 1975, unemployment rates ranged from a low of 2.5 percent in Daniels County to a high of 16.6 percent in Lincoln County—following the Libby Dam completion.

Unemployment generally has been much higher in western Montana than throughout the rest of the state, particularly in the eastern agricultural areas. This imbalance has existed for years. This persistent difference apparently has been the result of three factors—seasonality, employment and population change.

Seasonality. Employment in western Montana is subject to large seasonal variations—fluctuations in employment over the course of a year due mostly to climate and industrial mix. Large seasonal variations in employment mean that substantial numbers of workers will be unemployed during part of the year; this results in a high annual rate of unemployment. Outdoor industries such as wood products—especially logging—are affected by severe winter weather and spring breakups; tourist-related activities, although increasing in the winter season, still are concentrated in the summer months as a result of custom and climate. The importance of these two seasonal industries in western Montana contributes to that area's high unemployment rate. Figure 8 illustrates the relationship between the seasonality of employment and annual rates of unemployment, and clearly shows the tendency toward higher unemployment rates in western Montana counties. (Table A-1 in the Appendix for actual values.)

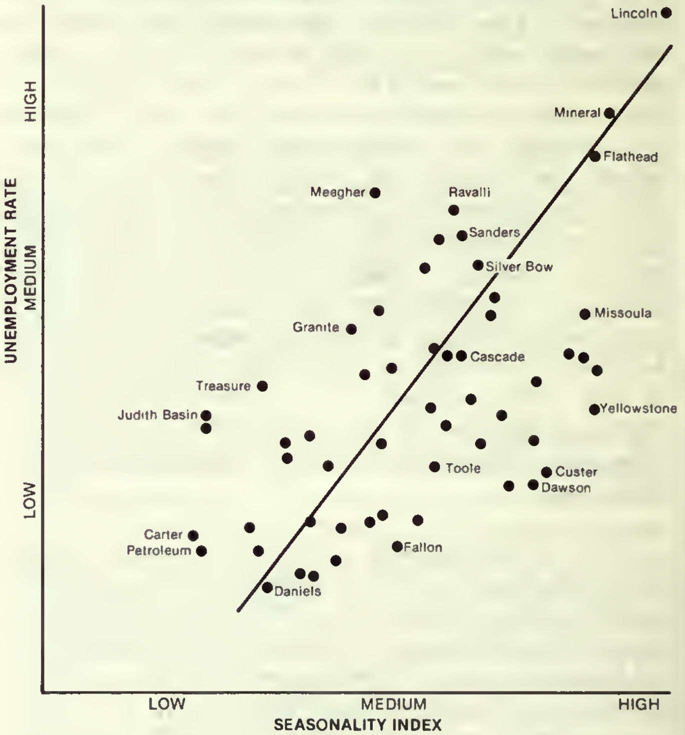
Employment and Population Change. The data indicate, paradoxically, that counties with lower than average employment growth generally have low unemployment rates. Correspondingly, areas with high employment growth have higher than average unemployment rates. The data also shows that areas with rapid population growth have high unemployment. Conversely, counties with slow population growth or declining population have lower than average unemployment.

No single variable fully explains, for example, why Montana's western counties have unemployment rates much higher than the eastern counties. However, all three variables (population growth, employment growth and seasonality) in combination explain much of the variation. There are no laws in economics, only general tendencies. In this instance, they are:

(I) If any area's population growth exceeds employment growth, unemployment will be generally high. This only makes sense; however, it is interesting to note that employment growth is usually higher in areas of relatively high unemployment and that unemployment is lower in areas with slow employment growth. Areas of high employment growth also have high population growth which forces unemployment upward. Areas with slow employment growth usually have out-migration which tends to reduce the unemployment rate. These tendencies hold true throughout the nation as well as within Montana.

(II) Much of the county variation in unemployment appears to be the result of industrial mix. This factor is as important as either population or employment growth. If an area has a high concentration of seasonal industries, as is the case in western Montana, unemployment will be higher than an area with less seasonal influence.

FIGURE 8
UNEMPLOYMENT AND SEASONALITY OF EMPLOYMENT



SOURCE: Western Analysis, Inc.

*NOTE: See Appendix for actual values.

Implications. Variations in unemployment rates may not always be related to economic performance but also may be related to industrial composition. Increasing employment levels may not reduce unemployment but may, in fact, lead to higher unemployment, if high population growth through in-migration occurs. That is, population growth may not be in phase with employment change if a significant number of individuals move to an area hoping to find work because that area appears to be growing rapidly. Flathead County and Alaska provide good examples of this tendency.

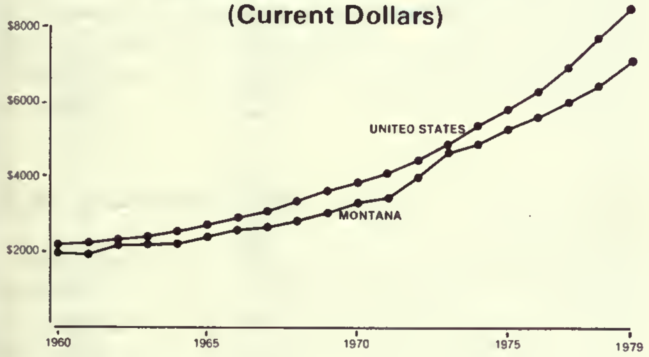
Employment stability may be improved through diversification or by fostering industries which employ the unemployed during the off-season, but only so long as population growth remains relatively stable. A careful balance between employment and population growth is necessary to either reduce or stabilize the unemployment rate.

3.4 INCOME

Income data serve as another useful indicator of economic well-being. The overall welfare of the state's residents also is determined as well by many intangible benefits which are equally important but no one would suggest that intangible benefits buy groceries.

Montana per capita income has grown at approximately the national rate; sometimes faster, sometimes slower. However, since 1960, Montana per capita income has been roughly 12 percent lower than the national level. This consistent difference is illustrated in Figure 9.

FIGURE 9
PER CAPITA INCOME IN MONTANA AND THE U.S.
(Current Dollars)

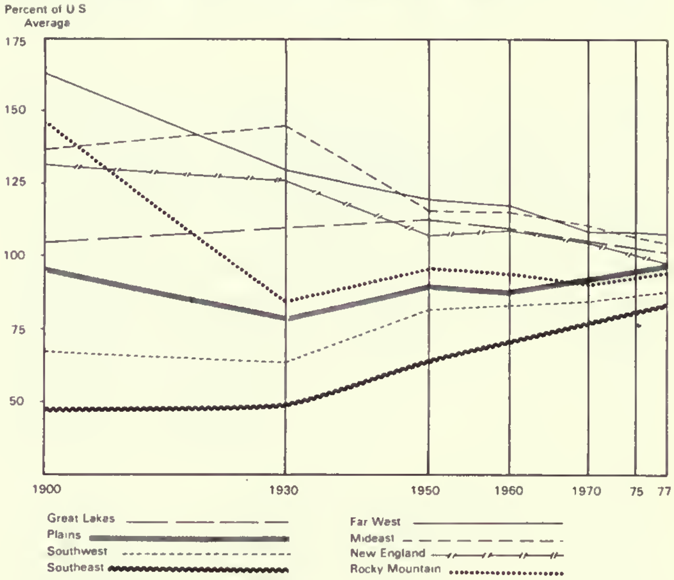


SOURCE: United States Department of Commerce, Bureau of Economic Analysis

Although variations in regional per capita income have lessened over time, Montana has shown little sign of converging with the national average. Since 1932 the rich regions (see Figure 10)—Mideast, Far West, New England, and Great Lakes—have become relatively less rich and the poor regions—Southeast, Plains and Rocky Mountains—have become less poor.

Nonetheless, the ranking of the regions is not very different in 1977 from what it was in 1930: the Far West, Mideast, and New England states are among the upper half of regions in the nation and the Plains, Southwest, and Southeast are the three lowest per capita income regions.

FIGURE 10
REGIONAL PER CAPITA INCOME AS A PERCENT OF U.S. AVERAGE, SELECTED YEARS, 1900-75



SOURCE: Department of Commerce

The periodic ups and downs in Montana per capita income for the most part, have been related to variations in farm income. The comparatively small variations in the national trend have been the result of business cycles, but agricultural states such as Montana are relatively insensitive to national cycles. As discussed earlier, some effects are felt (e.g., in the wood products and metal mining sectors), but not to the degree experienced by the most industrialized states.

In terms of the long-run trend, much of the absolute increase in income, both here and nationally, has been the result of inflation. For example, Montana's per capita income increased 230 percent between 1960 and 1978, while the real growth in purchasing power (per capita) grew by a more modest amount, 49 percent. And, in Montana, real per capita income has actually declined marginally since 1973, the state's best agricultural year. Inflation likely will result in a decline in real income for Montanans for the next year also.

Much of the historical upward drift in prices has been the result of factors mentioned previously: slower productivity gains in nonbasic activity and rapid labor force expansion. Throughout the 1970's, nominal increases in income through expanded employment often have outpaced real output levels, resulting in higher prices and declining purchasing power. Assuming that federal fiscal and monetary actions become more conservative and that the national declines in relative investment reverse, inflation should slow in the 1980's as the effects of the "baby boom" play out.

Aside from a few erratic changes, the result of exceptionally good or poor agricultural years, the composition of Montana income has followed the national trend, with total nonbasic income growing more than basic. This is not surprising because nearly all of the employment growth has occurred in the nonbasic sectors.

From 1973 to 1978, approximately 70 percent of the national (industrial) income growth was found in the nonbasic category. In Montana, the figure was somewhat higher, reflecting proportionately faster nonbasic employment growth. Although farm income has declined (farm income during the 1972-77 period averaged 13.5% of total income versus 5.1% for 1979), the other basic income producing sectors such as mining and manufacturing have experienced increases comparable to the national growth pattern. Montana's overall basic income growth in 1980, however, will feel the strain of losses in wood products, mining and smelting.

Table 7 illustrates the principal sources of income in Montana and the nation. Agricultural enterprises are clearly more important to the Montana economy than in most states. In fact, only North and South Dakota derive a higher percentage of their income from this source.

TABLE 7
Income by Industry
Percent of Total
(1974-79)

	Percent of Total (1974-79)		Average Earnings Per Employee 1979	
Sector	Montana	U.S.	Montana	U.S.
Farm	8.4%	3.1%	$ 6,998*	$10,557
Mining	4.0%	1.5%	25,871	25,710
Construction	8.0%	6.0%	22,825	19,953
Manufacturing	10.6%	26.0%	18,212	18,390
Transportation/Utilities	10.3%	7.5%	21,719	22,321
Trade	18.3%	16.7%	11,172	12.124
Finance	4.3%	5.6%	15,912	19,916
Services	14.8%	16.6%	11,609	13,462
Government	21.5%	17.1%	12,009	13,073

SOURCE: U.S. Department of Commerce

*NOTE: Includes proprietors, labor, and farm service workers. Generally farm earnings in Montana are well above the national figure . . . 1979 was not a good agricultural year for Montana.

Manufacturing in Montana generates a much smaller proportion of overall income than the national average; certain other nonbasic sectors (trade, services, construction, transportation, and government) account for approximately 70 percent of total income both in Montana and nationwide.*

Montana does have somewhat more government income and employment than is generally the case. Much of this concentration results from military employment and from federal land management agencies. Part of the explanation also is related to Montana's large land area and low population base.

One of the more frequently asked questions concerning Montana's economy is: Why is per capita income 12 percent lower than the national norm? There are no definitive explanations, but several possibilities exist.

—Employment in nearly all Montana industries is more seasonal than their national counterparts. Montana's employment base also is concentrated in industries which are more seasonal than their national counterparts. In other words, many individuals may not work year around in Montana, thus reducing the per capita income level. This effect may account for roughly 7 percentage points of the income discrepancy. Table 8 compares national and state seasonal fluctuations by industrial sector.

TABLE 8
Seasonality Comparison*
(Average 1960-1975)

	Montana Seasonality Index	United States Seasonality Index
Lumber and Wood Products	20%	8%
Primary Metals	15%	7%
Other Durables	19%	7%
Food and Kindred Products	20%	12%
Other Nondurables	7%	3%
Metal Mining	8%	6%
Coal and Other Nonmetallic	18%	10%
Oil and Gas	22%	5%
Construction	50%	20%
Railroad	8%	5%
Other Transportation	12%	4%
Communications and Utilities	7%	4%
Wholesale Trade	7%	4%
Retail General Merchandise	23%	25%
Food Stores	10%	5%
Automotive	11%	4%
Eating and Drinking	29%	12%
Building, Furniture, Misc.	14%	8%
Finance, Insurance and Real Estate	6%	4%
Hotels	55%	24%
Other Services	7%	5%
Federal Government	22%	4%
State and Local Government	8%	10%

*Defined as percent variation per year from the yearly mean value; i.e., monthly high minus monthly low divided by the yearly average.

SOURCE: Western Analysis, Inc.

—One commonly advanced explanation for Montana's lower per capita income level is that the state's economy has a larger than normal concentration of low paying industries. This does not appear to be true; in fact, most Montana hourly wage rates are somewhat above the national norm. And, since average weekly hours worked per employed person are comparable to the national level, the seasonality hypothesis again is confirmed. In other words, since Montana wages are slightly higher than the national level and work weeks (hours) are similar, a substantive part of the work force must not be employed year-round.

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*Strictly speaking, it may be appropriate to adjust out rail, heavy construction, federal government, and tourism-related income from the general "nonbasic" sectors noted above. If this is done, Montana's nonbasic percentage is less than the 70% mentioned above.

—Another factor which may contribute to Montana's lower per capita income is the state's population growth. With income rising at the national rate and population growing faster than the national average, changes in per capita levels in Montana will be less than the national increase. In addition, estimation error in population during the 1970's would account for about 1.4 points of the discrepancy between Montana and national per capita income levels. In other words, Montana per capita income levels were underestimated by approximately 1 percent during this period.

—The cost of living may be lower in Montana than nationwide. Although no state-specific income deflators exist, regional deflators suggest that prices are slightly lower in the western region of the country. If this is true, the "real" difference between Montana and the nation would be less than 12 percent.

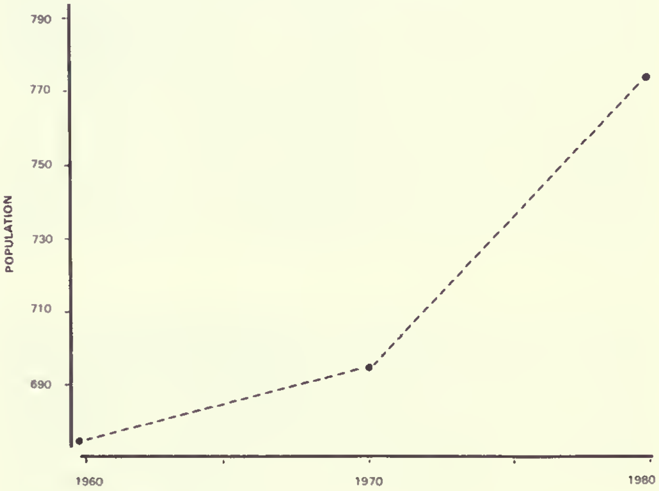
—The costs of crime, pollution, congestion, and commuter travel appear to be lower in Montana. Also, nearly all Montanans live within areas which other Americans are willing to spend literally days and hundreds of dollars to visit. Even though these sorts of influences are not accounted for in standard income or cost of living indices, there is a direct and substantial effect on real income.

3.5 POPULATION

Montana's population, like employment, has shown different behavior in the 1970's than in the previous decade, when economic growth was slow and many residents left the state to find work. Since 1970, the population flow has changed direction and approximately 28,000 individuals have migrated to Montana from other parts of the country.

Although Montana's rate of increase has been significantly faster than the national norm (40 percent faster), in point of comparison it has been 40 percent slower than in the Rocky Mountain region. This pattern of steady population increase is shown in Figure 11. Much of the population growth, however, has taken place in relatively few areas. For example, Flathead, Gallatin, Lewis and Clark, Missoula, and Yellowstone Counties account for nearly two-thirds of the total state gain. Out-migration has continued to be a problem for Great Falls, Anaconda, and Butte, as well as for many rural areas within Montana. Moreover, out-migration usually is composed of the young and talented, a community's most valuable asset. The closing of the smelter and refinery will exacerbate the problem. A discussion of county population trends is included in the regional analysis section of this report.

FIGURE 11
MONTANA POPULATION ESTIMATES
(Thousands)



SOURCE United States Bureau of the Census

3.6 THE NATURE OF POPULATION CHANGE

Three drastic variations in the rate at which national population reproduces and increases iteself have occurred in the past half century. The first was the "birth dearth" of the Depression years when total births dropped to about 2.5 million from an average of close to 3 million a year. During those years the number of children born to the average woman declined to close to 2.1 births per life time—the replacement level that would result in a stable population if maintained indefinitely. The second shift, the well-published "baby boom" of the postwar era, witnessed a fertility rate of 3.8, and the number of births per year exceeded 4 million during the mid-1950's. The third shift, often known as the "baby bust" has been marked by a progressively steep decline in the fertility rate. In 1976, the low point to date, the fertility rate was 1.77 with 3.17 million births occurring that year. Since then, both the fertility rate and number of births have slightly increased, but the overall rate is still well below the natural replacement level. Nevertheless, demographers anticipate that the fertility rate will increase in the future to approximately the replacement level by 1990.

The general pattern of births in Montana has closely paralleled the national trend. Montana's overall population growth rate, however, has been quite different. In the decade of the 1960's, Montana's population growth was a modest 2.7 percent while the national growth was approximately 13 percent. During the 1970-80 period, Montana's population increased 11.6 percent, more than the national increase of 8.3 percent. Although Montana's historical fertility and mortality rates have been slightly higher than the national norm, the dominant reason for the difference in population growth rates has been the result of migration. During the 1960's, approximately 58,000 Montanans left the state as a result of economic stagnation and limited employment opportunities. Since 1970 the population flow has changed direction and over 25,000 individuals have migrated to Montana from other parts of the country. Most recent estimates indicate that this in-migration represents about 30 percent of the total population increase since 1970, the other 70 percent resulting from natural growth, i.e., births exceeding deaths.

Migration patterns, like changes in fertility rates, also have an impact on the structure (age distribution) of the population. Of the 58,000 individuals who left Montana during the 1960's, approximately two-thirds were less than 30 years old; whole families were leaving the state. In-migrants since 1970 also are comparatively young.

The unstabilizing effects of major changes in fertility rates coupled with volatile migration patterns, have and will continue to result in major waves in Montana's population. Some cohorts, or age groups, have expanded dramatically but later will shrink abruptly as these waves occur. Other cohorts will shrink and then expand much faster than the overall population level, all as a result of changes which took place years ago but are only now being felt.

Demographer Denis Johnston of the Census Bureau has vividly depicted the "baby boom" as being similar to a "melon being digested by a boa constrictor . . . it will undergo strains and pose a succession of problems for the nation's institutions as it moves through the age cycle." A few examples of these strains so far have included:

—Declining grade and high school enrollment.

—Rising unemployment and inflation as a result of rapid increases in the number of new entrants into labor force.

—A dramatic increase in the demand for new homes and a host of other consumer products targeted at specific age groups. The post-war babies are now young adults with their own families. Since 1970, the number of new Montana households has grown by approximately 56,000, a 26 percent increase. National increases were more on the order of 20 percent. The aggregate economic and social impact of age structure changes has been significant. In addition to an increased demand for new homes, a host of other consumer products have been targeted at specific age groups (recreational forms and facilities, quick-food restaurants, clothing styles, etc.). The effects extend to the expansion of credit to school enrollment cycles as well as to the composition and growth of the labor force mentioned earlier.

—Rising crime rates related to a short-term swell in the number of young individuals who are more prone to commit crime.

Future impacts will include:

—Declining college enrollment.

—Slower economic expansion but lower inflation and unemployment resulting from slower labor force growth.

—Mounting costs of retirement and health care programs as the population becomes older.

—Falling crime rates as the relative number of young people declines.

An analysis of the impact of the demographic composition of the population is included in the projections section of this report.

3.7 SUMMARY

The reconciliation between income, employment, unemployment and population in any region is extremely difficult. It is extremely important, nevertheless, that we explore and understand the relationships between these indicators of relative economic health. For instance, increasing employment levels are no guarantee of reduced unemployment rates, because increases in employment opportunities can be more than offset by changes in the labor force (e.g., the number of people actively seeking employment). Typically, regions which have rapid employment (or population) growth also have relatively high unemployment rates as a result of greater competition for jobs. This increased competition may result from either in-migration or from higher participation rates within the region.

The population effects of employment increases are equally difficult to analyze. The population change resulting from growth in the nonbasic sector is generally much lower than that resulting from an increase in basic activity. In Montana, many of the jobs within the nonbasic sectors have been filled by women and, as a result, migration effects have been negligible. It is not surprising, then, that employment currently is growing much faster than population. Even though many of these new jobs have been part-time and low-paying, nonbasic growth has resulted in substantial increases in total income.

The relationship between population and income is very definitely a two-way road. The out-migration of the fifties and sixties kept per capita income levels for the remaining population higher than they would have been in the absence of migration. Of course, this migration was not without cost. Many young people who were eager to work in Montana went shopping for jobs elsewhere.

The situation now is reversed and census estimates, as well as several other sources, indicate a fairly high level of in-migration. Ironically, many of the individuals appear to be moving into areas of the state where unemployment is quite high. The interested reader should review the maps in the Appendix which visually reveal these trends.

4 ECONOMIC DEVELOPMENT POTENTIAL

4.0 SMALL BUSINESS AND JOB GENERATION

No one can deny that there are benefits for a state in capturing industries that operate elsewhere or might open branch plants in another area. Industries do create jobs, with spin-off effects in subsidiary employment for suppliers and service firms. For small towns, rural communities and one-industry areas, the arrival or exit of a major plant can have a dramatic impact on the citizens' economic well-being. Aware of these benefits, many states invest immense amounts of time, money and energy in industrial recruiting, to the point where "smokestack chasing" activities overshadow all other economic development efforts. A strong argument has been made, however, that this approach involves excessive costs, leads to abuses and generates fierce and counterproductive rivalries among states and regions. Most serious of all, this approach may miss the mark of where the greatest potential lies for increased employment and economic growth in the United States today.

Pioneering research* by David L. Birch (Joint Center for Urban Studies at the Massachusetts Institute of Technology and Harvard University) produced the following results:

—Smokestack chasing—pirating firms from out-of-state or region—produces negligible over-all employment effects. The average net shift (what a state might gain over what it might lose in a given three-year period due to firm migrations between the states) was only 0.1 percent of employment change in the state.

—The principal source of differences in growth rates among states lies in the rate of births of new enterprises and the expansion of existing ones. Expansions have the most impact, followed by births and contractors.

—The majority of new jobs in an economy come from the birth and expansion of independent corporations, not from branch plants, headquarters or the relocation of multiplant operations.

Most importantly, in Montana and the nation, it is the small firms which contribute crucially to new job creation. For example, nearly 75 percent of private employment in Montana is found in firms with fewer than 50 workers (see Table 9). Over 60 percent of the 1970-1976 growth in private employment occurred in firms of this size (see Table 10). The significance of small firms for employment growth nationally also is important. Their ability to add new jobs has increased relative to large businesses. Total jobs in businesses employing less than 100 people increased 13.2 percent between 1967-1972, compared with 8.9 percent for businesses employing over 1000 workers. A decade earlier large firms grew three times as fast as small firms.

TABLE 9
Montana
Business Size Comparison
(Private Wage and Salary Employment*)
1977

Business Size (employees)	Percent of Total Establishments	Percent of Total Employment
1-4	63.0%	16.8%
5-9	18.3%	13.3%
10-19	10.7%	16.2%
20-49	5.7%	20.4%
50-99	1.4%	8.8%
100-249	0.6%	10.2%
250-499	0.1%	3.5%
500-599	0.1%	3.0%
> 1000	0.1%	7.8%
	100.0%	100.0%

SOURCES: Western Analysis, Inc., Helena, Montana.

Derived from County Business Patterns, Montana summary, United States Department of Commerce, Bureau of the Census, 1976.

202 and 790 employment series, Research and Analysis Section, Montana Department of Labor and Industry, 1977.

*NOTE: Excludes agriculture, government, and non-farm proprietors.

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*Based on an analysis of Dun & Bradstreet data tracing the behavior of about 80 percent of all American businesses.

TABLE 10
Private Nonagricultural Employment Growth By Size of Establishment Montana (1970-1976)

Number of Employees Per Establishment	Percent of Statewide Employment Growth (1970-1976)
1-19	43.0%
20-49	19.5%
50-99	7.6%
100-249	17.0%
> 250	12.9%
	100.0%

SOURCES: Western Analysis, Inc., Helena, Montana.

Derived from County Business Patterns, Montana summary, United States Department of Commerce, Bureau of the Census, 1970 and 1976.

202 and 790 employment series, Research and Analysis Section, Montana Department of Labor and Industry, 1970 and 1976.

According to the Birch report, all parts of the country are losing jobs at about the same rate—eight percent per year. Replacement of these lost jobs with new ones, through either the birth of new establishments or the expansion of existing ones, is the principal factor in determination of an area's growth or decline. Between 1969 and 1976 independent (single-establishment) firms played the dominant role in providing new jobs due to expansion, when compared with branch plants. Of all new jobs (national) generated between 1974 and 1976, at least 75 percent were created by firms less than 4 years old. Finally, small companies, those with less than twenty employees, contributed 66 percent of net new jobs in the U.S. between 1969-1976. Over half of the new jobs were in small, independent businesses.

This figure, however, should be interpreted cautiously since the trade and service sectors contributed 88 percent of the total U.S. employment gain between 1960-1976, and small businesses are more dominant in these sectors than in manufacturing, for example. In other words, employment gains apparently due to small businesses are largely a result of simply trade and service sector growth. The same is true in Montana where basic employment has been "more or less" stable for more than a decade.

The form of traditional state economic development programs ironically has been on attracting large out-of-state manufacturing firms. This is surprising in view of the fact that very little growth in either Montana or the nation has occurred in manufacturing. Although the manufacturing oriented effort of many state programs (i.e., advertising, tax breaks, etc.) "may be justified" in the sense that manufacturing brings new money into the area, the battle is very definitely an uphill fight. First, only about seven percent of all national manufacturing firms have "tentative" plans to expand existing facilities or establish plants at a new location each year. Less than 15 percent of these plans actually materialize. Further, it is likely that development will occur at an existing site, not at a new location. Less than 10 percent of these firms ever relocate or grow to the point of having branch plants. (Of course, firms that do are some of the largest and, hence, most likely to relocate.) Second, many firms don't move very far in relocation. Even though the shift has been toward the "small town", the new site is often within the vicinity of the original metropolitan area.

Remoteness often has been cited as one of Montana's most precious assets. This asset also works to Montana's disadvantage since national markets are distant and transportation costs are high. In addition, Montana's labor supplies are relatively sparse when compared with national norms. Simply put, with the exception of extractive industries, Montana is at a competitive disadvantage with other regions when trying to "attract" the one percent of national manufacturing firms which expand existing operations or establish new plants each year. Fostering internal expansion of existing firms, many of them resource based, is a much more practical consideration.

4.1 INDUSTRIAL LOCATION DETERMINANTS

It is difficult to determine with precision the reasons that a particular business develops at one location as opposed to another. Economic theory focuses attention on major cost components including labor, transportation, utility rates, taxes, and the like. Although such factors are important, there are many considerations which cannot be quantified. For example, nearly all industries, including the major national corporations, were at one time the result of one individual's efforts. The industries grew where the entrepreneur was, regardless of comparative costs. Another important but often overlooked fact is that the nation did not develop in a uniform manner. Early settlement and manufacturing patterns still play a major role in determining the present shifts in manufacturing activity. That is, many industries which are seeking new locations are constrained to locate in areas which are already developed. These industries frequently are linked to an already developed existing industrial complex through technology, input requirements, financial institutions, and so on.

LABOR COSTS

Average manufacturing wages in Montana (see Table 11) are much higher than the national norm and substantially higher than the prime manufacturing growth area, the southern states.* Manufacturing employment in Montana is heavily concentrated in capital intense industries such as smelting, refining, lumber and paper mills, etc. These industries are highly productive industries and are also relatively high paying, thus driving the average manufacturing wage up. Although some may contend that union strength results in Montana's high manufacturing wages, comparisons of national wage rates in the same industries refute this claim. In fact, Montana is slightly less unionized than the national norm.

High manufacturing wages also result from the relative absence of light (labor intense) industry in Montana, which generally pays somewhat lower wages. Again, this inflates the state's average. As a result, comparisons of average wages with other states are made with some risk. Wage rates vary significantly among manufacturing industries and the industry mix varies among states. Specifically, it is questionable, to assert that Montana's labor index of 135 is applicable to light industry which could be expected to develop in Montana. The labor-intense index value was estimated to be 88; labor-intense firms in Montana pay 12% less than the national norm for those specific industry groups. Dividing the labor cost analysis into two groups with distinctly different values more closely reflects the labor conditions of Montana's atypical industrial composition.

UTILITIES

Electrical and gas rates exhibit far more variation than labor costs. Montana presently is a low utility rate area, particularly for electricity. As more thermal (high cost) electric generating plants are added to the less expensive hydroelectric generation base, however, the rates will rise. In addition, Bonneville Power rates for western Montana are expected to increase within the next few years as revised pricing policies are adopted. It is still likely that Montana will have a slight cost advantage in this area in the longer term, but the advantage will not be as significant as it is today. Although utility rates are usually not a major cost item for most manufacturing companies, they are very important for a number of Montana firms: aluminum, phosphorus, paper, and

TABLE 11
State Manufacturing Cost Comparison Index Values
(1979)

	Manufacturing Wage Rate	Electricity	Gas	Taxes	Transportation
Alabama	88	94	79	81	74
Arkansas	81	102	73	83	78
California	102	130	113	100	177
Colorado	98	89	67	101	116
Georgia	87	106	79	91	74
Idaho	110	52	113	99	158
Illinois	105	109	103	94	71
MONTANA	135	30	87	107	145
Nevada	105	100	101	105	162
New Jersey	101	157	134	99	90
New York	101	126	128	146	90
North Dakota	89	114	104	102	106
Oklahoma	91	94	89	85	88
Oregon	126	41	117	98	194
Pennsylvania	97	125	117	92	80
South Dakota	87	98	68	88	98
Texas	91	95	116	92	96
Utah	91	91	66	101	143
Washington	117	20	119	97	193
Wyoming	92	55	65	124	125

SOURCE: U.S. Department of Commerce
Western Analysis, Inc.

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*Total private wage rates in Montana in 1978 were 4 percent higher than the national average. Mining was 16 percent higher, construction 32 percent higher, transportation/communications/utilities two percent lower, trade 17 percent lower, and services 19 percent lower

SOURCE Bureau of Labor Statistics

cement. A number of Montana plants have changed or are changing the fuel and technology used in an effort to lower costs.

TAXES

The effect of taxation on manufacturing growth remains a hotly debated consideration, even though overall business taxes usually constitute less than two percent of total production cost at the national level. Although taxes paid per $100 of profits vary substantially from state to state, the relative cost of taxes remains relatively low, probably less than a one percent variation between states. A recent study by the Academy for Contemporary Problems, Columbus, Ohio, indicates that total business taxes are generally about 30 percent lower than the national average in the southern states and that Montana is slightly higher than the national norm. However, these figures are based on estimates and do not reflect differences in the relative profitability of businesses from state to state. The overall tax burden (total federal, state, and local taxes as a percent of state income) in Montana is shown in Table 11.

Tax breaks and other inducements that states offer to attract industry are losing their appeal. A growing number of economists condemns them as wasteful and self-defeating. State officials who defend them confess to feeling trapped in an escalating race to attract and keep corporations. The giving is generous. States offer a cornucopia of tax credits, exemptions, rollbacks, reductions and deferrals. Many also tout industrial-revenue bonds and municipally owned industrial parks. Lately, New York has led the sweepstakes with 27 inducement programs.

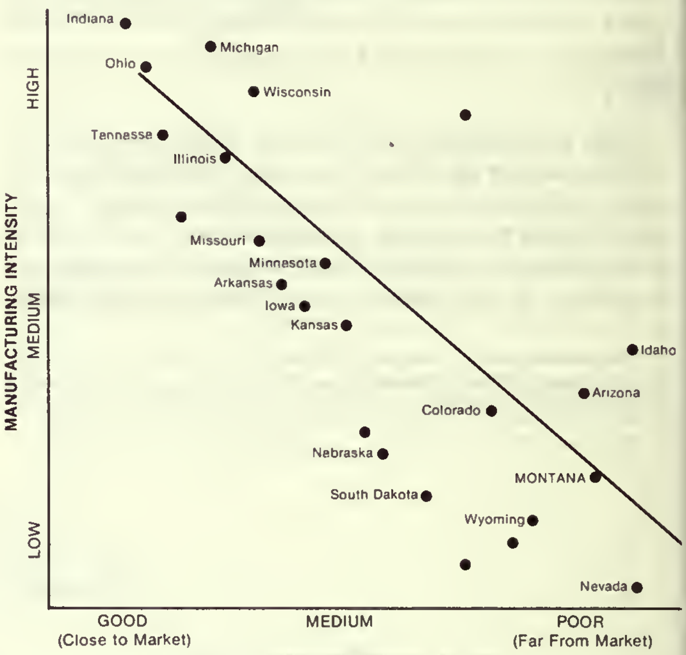
But a 1980 North Dakota study found that a major exemption that the state has offered for more than a decade has had negligible influence. And a partially completed study for the Economic Development Administration concludes there isn't any relationship between the level of state taxes and the creation of jobs and investments.

TRANSPORTATION

Transportation costs generally account for about two percent of total manufacturing cost although the variation between industries is significant, ranging from a low of less than ½ percent to over seven percent, depending upon the product. Estimates of overall access to national markets suggest that Montana's relative transportation costs may be as much as 50 percent higher than the average state and nearly 100 percent higher than most states in the "manufacturing belt."

Figure 12 illustrates the relationship between market access for landlocked states and manufacturing intensity. Market access is defined as an approximation of the relative transportation costs of serving the entire nation from one state. Manufacturing intensity is defined as the percent of state income that is related to manufacturing income.

FIGURE 12
MANUFACTURING INTENSITY AND MARKET ACCESS

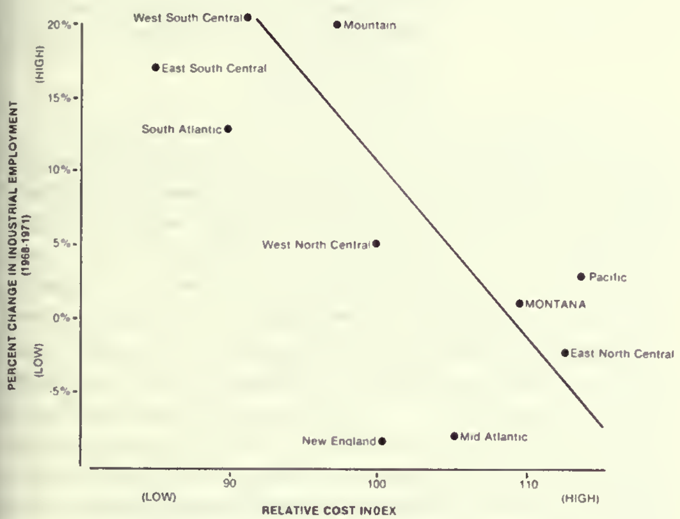


SOURCE: Western Analysis, Inc.

STATE OVERVIEW OF COSTS

In order to present the data in a more meaningful way, the four cost components were averaged based on the relative costs of manufacturing by using the national input/output table. For example, labor costs represent 81 percent of the overall index, utilities 6.0 percent, and taxes and transportation 6.5 percent each. This composite index, computed by Census region, is shown in Figure 13, along with manufacturing growth. As can be seen, the southern and mountain states have experienced more rapid growth and have relatively lower costs. Conversely, the old manufacturing belt states and the Pacific region have experienced slower growth and have relatively higher costs. Montana's costs are also quite high and growth has been rather slow. But, as was mentioned earlier, there are far more determinants of manufacturing activity than simply labor, energy, transportation costs, etc. Several such factors are discussed on the following page.

FIGURE 13
INDUSTRIAL GROWTH AND COMPARATIVE COST



SOURCE: Western Analysis

OTHER GROWTH DETERMINANTS

Manufacturing firms most often locate in areas where they have both an immediate market and an immediate source of inputs including specialized labor, technical assistance, large financial institutions, and the availability of related manufacturing firms and shops. Generally, such advantages are found in large urban areas.

There are very few significant linkages within the Montana economy. With the exception of the mining, wood products, and, to a limited degree, the agricultural complex, manufacturing firms in the state are virtually independent. They are not functionally tied through internal sales or technology.*

Relatively few national manufacturing firms are tied to the natural resource base. However, in Montana, a raw material orientation has been the rule rather than the exception. Nearly 75 percent of manufacturing activity in the state is directly linked to the resource base, a proportion which is probably higher than in nearly any other state.

The transportation cost of raw materials is the dominant location factor for many Montana industries, since it is not feasible to transport raw ore, uncut timber, etc., for any great distance. It becomes necessary to at least partially process the material to reduce cost.

After a firm has determined a suitable area (region or state) for relocation, based on comparative costs and interindustry linkages, it will begin to search out individual communities which meet its needs. Nationally, manufacturing firms consider the following community attributes most important when relocating, listed in order of importance:

(1) fire protection
(2) contract trucking
(3) police protection
(4) trained worker availability
(5) unskilled worker availability
(6) air service (passenger)
(7) tax incentives (local)
(8) industrial zoning

National firms also regard the following plant site features as most important:

(1) interstate highway access
(2) natural gas service
(3) industrial water supply
(4) rail service
(5) sewage processing
(6) solid waste disposal
(7) soil load-bearing capabilities
(8) air freight service
(9) industrial parks

SOURCES: U.S. Department of Commerce
Bureau of Labor Statistics
Montana Department of Labor and Industry
Western Analysis, Inc.

4.2 MANUFACTURING POTENTIAL

Three hundred potential industries were ranked in terms of development feasibility in Montana. The ranking was based on a variety of characteristics including labor requirements and costs, transportation costs, utility costs and external market considerations. Although the procedure, called a "screening matrix", allows for a systematic comparison of development potential by industry, it is by no means a precise measure. It is capable only of revealing general patterns or trends.

Many of the firms which already exist in Montana scored the highest, which is expected. The following comparison of selected firms illustrates the general degree of feasibility as defined by the matrix. (See Table 12)

Group I

Best	Meat Processing
	Animal Fat Oils
	Cardboard
	Building Paper
	Furniture
	Pulp
	Copper/Lead/Zinc

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*These conclusions are based on the 1975 Montana Input/Output tables developed by Western Analysis, Inc.

Group II
Good
- Plywood
- Prefab Buildings
- Paper Mills
- Aluminum Castings
- Farm Machinery
- Grain Products
- Paper Containers

Group III
Fair
- Clothing
- Greeting Cards
- Hardware
- Hand Tools
- Electronic Components
- Surgical Supplies
- Rolling and Drawing

Group IV
Poor
- Tires
- Iron Foundries
- Power Transmission Equipment
- Construction Machinery
- Railroad Cars
- Motor Vehicles
- Engines

Group V
Bad
- Turbines
- Aircraft
- Textile Machinery
- Refrigerators
- Machine Tools
- Steel Works
- Ship Building

It should be noted that a higher score does not necessarily mean that the industry will succeed in Montana but only that it may have an advantage relative to other industries. For example, meat processing was rated high in the matrix but many such firms have failed in Montana even with good management. The type of beef slaughtered in Montana is very different in nature than that processed in Nebraska, Iowa, etc., where larger markets also exist. Pulp mills scored high, but future development of this industry is possibly constrained by limited inputs (i.e., wood residue inputs) and public opinion. In other words, mill facilities would probably have to expand before further pulp development could occur.

In addition, many industries which scored high in the matrix have limited markets. For example, lime, petro-

TABLE 12
DEVELOPMENT POTENTIAL BY INDUSTRIAL GROUP
Common Characteristics By Score

Group	Employment Level	Wages	Value Added	Transportation Costs	Energy Use	Growth Rate	Market	Raw Material Orientation	Urban Orientation	Linkages	Other
I Best	Medium	High	Low	High	Medium	Low	Regional	Dominate	Low	Backward only	Natural Resource Orientation
II Good	Low	Medium	Medium	Medium	Low	Medium	Regional	Not Important	Low	Usually Backward	Generally Footloose
III Fair	Low	Low	High	Low	Low	High	National	Not Important	Medium	Not Important	Footloose
IV Poor	High	High	High	Low	Medium	Low	National	Not Important	High	Forward & Backward	Market Orientation
V Bad	Very High	High	High	Medium	High	Very Low	National	Not Important	High	Forward & Backward	Market Orientation

DEFINITIONS:

Forward linkage: a firm that tends to locate near the consumer of its product has a forward linkage.

Backward linkage: a firm that tends to locate near its materials supplier has a supply or backward linkage.

Concentration dependence: a firm that tends to locate near other firms within its own major industrial category, through sharing facilities and services, has a concentration dependence.

Urban orientation: a firm that tends to locate near metropolitan and urban areas because of the large available labor force, financial institutions, etc., is said to have urban orientation.

Raw material orientation: a firm that tends to locate near the source of its primary natural resource input has a raw material orientation.

SOURCE: Western Analysis, Inc.

leum coal products, dairy, and concrete products were rated high but are obviously not products with a national market orientation. As a result, further screening will be necessary to eliminate those sectors which require substantial local markets if it is the desire of a community to promote regional or national manufacturing firms.

Table 12 shows general industrial characteristics or tendencies which result from the industry specific ranking of all 300 manufacturing possibilities. The following conclusions were drawn from these general tendencies. The order is of no importance.

I) Montana's best development potential is probably in the resource based industries, even though the overall growth rate is low and transportation cost high with respect to the value of the product.

II) Value added is much higher in those sectors which have a strong market orientation. Montana may find it necessary to focus development efforts on medium value added products. High value added products generally have high employment levels, national markets and a strong urban orientation which may preclude such development here.

III) With the exception of the resource based industries, manufacturing firms which appear to have a realistic chance of development in Montana typically will pay somewhat lower wage rates than large scale firms.

IV) The high employment requirements of industries in the fourth and fifth categories will probably preclude such development in Montana. These firms also are slow growth industries and have a high urban orientation. Montana should focus on industries employing relatively few workers.

V) The fastest growth industries are generally footloose, that is, not tied to a natural resource base or market orientation. Wages and employment requirements generally are lower than average. Transportation costs also are relatively low. These industries appear to be realistic growth candidates for Montana.

VI) Montana should focus on industries which have a relatively low degree of urban orientation. The linkage and market structure of these industries present fewer constraints for development.

VII) Industries with agglomeration economies (i.e., linkages and scale effects are important) are not likely growth candidates in Montana.

VIII) The industries with the highest potential for development generally appear to have regional markets.

IX) Even though the highest two development categories have relatively high transportation costs, weight is lost during manufacture which tends to compensate for Montana's transportation disadvantage. However, in some cases developers may wish to focus on industries which have relatively low transportation cost, i.e., the footloose industries.

X) With the exception of the resource based industries, the development potential for Montana appears to be in industries which are relatively low energy users.

XI) National manufacturing growth within the past two decades has been found in "footloose" industries, which usually have relatively low employment requirements, lower than average wages, high value-added characteristics, a national market, and relatively low transportation costs. Examples of such industries include electronic components, hardware, surgical instruments, truck trailers, fabricated metal products, clothing, etc.

XII) Although there is no specific information available, it appears that about 40 percent of the manufacturing employment expansion in Montana since 1960 has been in this light-industry group, i.e., the footloose firms.

4.3 DEVELOPMENT OPTIONS: A SUMMARY

Economic development is not an optional activity for state governments. By action or inaction, interest or indifference, state governments make daily decisions that have profound effects on the lives of their citizens and the health of their communities.

Despite its central importance, however, economic development has long been a source of confusion in state capitals. No accepted textbook of its administration exists; the literature is sparse. The relationship between the public and private sectors is clearly intertwined but poorly understood.

Most state economic development officials believe their primary function is to help private industry make and implement investment decisions. To that end, they have pushed their legislatures to adopt measures, like tax incentives, which demonstrate to business the state's "positive attitude" and enhance its competitive position vis-a-vis other states. A growing number of people from all walks of public and private life is beginning to challenge seriously this prevailing view.

In their desire to impress business and grab the competitive edge in the fierce struggle for new and footloose firms, many states have adopted what the *Wall Street Journal* calls a "candy store of incentive programs". These promise industries special tax and financial treatment—from outright exemptions on property taxes to special loan and bond programs. Increasingly, however, these incentives, like their sister philosophy "smokestack chasing," are coming under strong criticism from many fronts: from liberals who oppose special breaks for business; from conservatives who, in a Proposition 13 environment, are demanding fair and more equal tax systems; from public officials who see the trend spiralling out of control; and, from a growing number of economists who believe, simply, that the incentives don't work.

If, as the critics contend, the traditional state approaches to economic development are no longer the most effective, what are the alternatives?

A new body of thinking is emerging, some of it based on experiments already under way in states and localities, other ideas breaking new ground. Its centerpiece is the view that state power to influence economic conditions, when effectively coordinated and targeted, is far greater than most governors or legislators realize. Proponents of the new strategies believe large economic enterprises, for the most part, will function effectively (more so, some contend) without state involvement beyond a fair tax and regulatory system. **Instead, states should focus their economic activities on all-too-often neglected fields, such as promoting the growth of small businesses and existing state industries, and nurturing new economic enterprises. The traditional attempt to lure footloose businesses by slick brochures and tax breaks historically has not been effective. And, if the research from Birch and others is correct—that small businesses including new manufacturing are the ones accounting for the lion's share of the nation's new jobs—then the time may have come for the public sector to begin a new focus.**

No state has a comprehensive program to assist small business, but a few experiences and models do appear to be having an impact. Most business analysts agree that access to capital is the most peristent problem small businesses face. Several states have developed state institutions to finance long-term debt for business expansions and venture capital for new enterprises. Massachusetts and Connecticut, for example, use "umbrella" revenue bonds to help finance these enterprises: several projects are financed under one "umbrella" bond, reducing the risk should any fail. In North Dakota, the nation's only state-owned bank buys up loans commercial banks have already made, thus freeing capital supplies for new loans.

One interesting financing instrument is Connecticut's Product Development Corporation, providing capital to new enterprises wishing to develop "new" products. The state then receives a royalty for each new product sold. The system was pioneered by Pittsburgh's Mellon Bank in 1977 when interest rates were climbing. Banks in New York, Massachusetts and Washington, D.C. followed.

Many states also have begun offering useful technical and management assistance to small business. One innovative state agency is the Massachusetts Community Economic Development Assistance Corporation, which helps new enterprises and community corporations obtain management and financial help. Michigan, like a number of states, disseminates information to small business operators through the state's community college system. And several states—notably Florida and Georgia—have excellent programs for teaching small enterprises the arts of exporting and foreign trade.

Some states exempt small businesses from environmental and other regulatory requirements, or at least relax the standards. A few have established an "obmudsman" to guide the small enterpreneur through the state regulatory maze and report to legislators and administrators the special bureaucratic hassles confronting small businesses.

5 CAPITAL AND BUSINESS DEVELOPMENT

5.0 THE BUSINESS VIEW

Is Montana capital short? A mini-survey was conducted to assess the perceptions of private businesses concerning capital access. Thirty-five small manufacturing firms selected by the Governor's Office of Commerce and Small Business Development were asked to rank their business related problems in order of importance. The response was also low; only 16 firms returned the form. As a result the findings should be viewed with considerable caution. However, the majority of the Montana firms who responded tended to rank capital availability as one of their more important business problems. Inflation was ranked highest and management problems lowest; a pattern which has been consistent with a variety of national surveys. National survey results, however, are dependent on current economic conditions. The National Federation of Independent Business prepares a quarterly survey asking its members to rank their problems by order of importance. The results of the survey have varied over time, with taxes and inflation normally dominating the list. During the 1974 oil embargo, for example, fuel and material shortages ranked very high. By contrast, interest rates and financing tend to become more important during cyclical credit crunches. Even during the depths of the last recession, an inadequate demand for product was not ranked as an important problem by most firms. Government regulation seemed to take on greater importance during the last recession, becoming even more important than inadequate demand.

A similar national study by Stahrl Edmunds also ranked capital availability as a major small business issue. Interestingly, management problems are ranked low even though over 90 percent of business failures are related to "management weaknesses." Although capital availability no doubt contributes to failure, it is not a dominant issue.

Returning to the Montana business survey, all firms indicated that they had required conventional financing within the past year. Most of them (about 70%) were successful in their attempts to obtain the loan amount that they are seeking, however, only half received the desired terms. Like the bankers (next section), nearly all the firms cited lack of equity as a major bottleneck to business expansion. It is important to note that these firms were not "new" businesses and all seem to have an established business track record, i.e., they have survived the first few critical years when approximately 50 percent of all businesses fail.

5.1 THE BANKERS' VIEW

A second questionnaire shown below was mailed to 158 Montana banks to determine how bankers perceive the capital shortage issue. Their responses (125 banks responding) are shown below:

BANKERS QUESTIONNAIRE

1. Is procuring financing a major problem for existing (expansion) or prospective businesses in your community?

24% YES **76%** NO

2. Are you satisfied with your bank's ability to make loans to qualified businesses?

83% YES **17%** NO

If not, why? ______________________________

____

3. In your opinion, is there a capital shortage in your community?

38% YES **62%** NO

Would your answer in this question have been different 18 months ago?

17% YES **83%** NO

4. Have you had any business loan requests that you have had to turn down because of the nature of the loan (size and duration) and/or lack of your ability to find a buyer on the secondary market?

43% YES **57%** NO

If so, how often does this happen? ____________

5. Have you had any business loan requests that you have had to turn down solely because the borrower did not have sufficient equity?

93% YES **7%** NO

If so, how often does this happen? **(frequently).**

The vast majority of bankers do not believe that there are any major problems in securing financing. On the basis of the open-ended questions (number 2, 4, and 5), if difficulties arise they are most likely the result of lack of experience (i.e., a new business), a perceived **lack of competence** or **insufficient equity**. These attitudes are summed up by a rural western Montana banker who states:

> "There is not an unmet local need for capital in many areas so far as business loans are concerned for eligible borrowers. There are numerous speculative ventures not eligible to conventional lenders which need private capital, not public tax funds. The ability to repay a loan is still of prime importance in any loan, but government agencies lend tax dollars and give only lip service to repayment ability. The lack of private capital in most instances has its solution in tax structure itself."

5.2 THE ECONOMIST'S VIEW

Montana's employment and population growth has outpaced the national rate of increase for the last decade. This growth differential also is reflected by Montana's financial picture. Table 13 reveals that assets, deposits and loans have grown significantly faster in Montana than at the national level. Apparently, Montanans also tend to save more (or conversely spend less) relative to their income, saving approximately 20 percent more than their national counterparts. Montana's interst rates are, however, ¼ point higher and our loan to asset ratio somewhat lower than the U.S. average. Also, Montana banks tend to hold more government securities relative to their asset base.

A recent investigation by Western Analysis of variations in financial parameters between states revealed the following tendencies:

- The loan to asset ratio is inversely associated with the number of banks and the population level;
- The loan to asset ratio in inversely related to agricultural concentration;
- The government securities to assets ratio is inversely related to interest charged by banks; and
- Interest charged by banks is higher in fast growth states and lower in agricultural areas.

TABLE 13
Selected Financial Statistics
(1974-78)

	Montana	United States
Increase in Assets	48.9%	39.5%
Increase in Deposits	51.1%	36.1%
Increase in Commercial Loans	78.1%	21.1%
Increase in Real Estate Loans	77.3%	62.8%
Increase in Government Securities	38.8%	38.3%
Increase in Income	47.8%	48.0%
Deposits Per Capita	$4306	$3962
Loans Per Capita	$2939	$2793
Income Per Capita	$5794	$6542
Interest Rate (Lending)	9.12%	8.87%
Interest Rate (Savings)	5.62%	5.48%
Loans & Securities/Assets	.562	.562
Securities/Assets	.263	.228
Loans/Assets	.300	.334
Commercial Loans/ Assets	.142	.182
Loan Mix-Percent Commercial	47.1%	54.5%
Loans/Deposits	.339	.410
Populaton Growth (1970-79)	12.8%	8.0%
Employment Growth (1970-79)	34.4%	23.3%
Manufacturing Capital Expenditures (1970-76)	102%	83%

SOURCES: U.S. Federal Deposit Insurance Corporation, Assets and Liabilities: Commercial and Mutual Savings Banks
U.S. Bureau of Census
U.S. Bureau of Labor Statistics
U.S. Department of Commerce

There is little disagreement among economists that the availability of capital is a necessary ingredient for sustained economic growth. The debate over the efficiency of the capital market is much more difficult to resolve. Classical economic theory is built on the assumption of perfect capital markets, which implies that capital flows freely among regions, and therefore is readily available for "acceptable" investment opportunities. This line of reasoning concludes that **if** the demand will result in an **acceptable** rate of return, then capital will flow freely and hence not be a constraint or impediment to economic growth.

Thomas Romans, of Wesleyan University, maintains that regional differences in the price and availability of capital are extremely small. Regions with high per capita income generally have an excess of savings over investment, hence they export capital out of the region to regions which will tend to import capital. Second, capital will tend to flow toward regions which are growing faster, under the assumption that these regions will have higher marginal rates of return on capital (a tendency largely supported by Roman's empirical results). Other analysts support this position and argue that . . .

> "the capital market in the United States is almost a perfect one, so that regional flows are quite consistent with equalization of marginal rates of return on investment. Nevertheless, differentials in interest rates do appear among regions. While small, they suggest the directions in which capital is moving. Yield differentials on marketable residential mortgages indicate higher yields in the West and South. The same differentials appear in interest charges for commecial bank loans."

It should be noted, nevertheless, that there have been few attempts to measure or analyze the regional structure of money capital markets and interregional capital flows. The belief seems widespread that capital markets in the United States are so extensively developed and so close to "perfect" on a nationwide basis that regional variation in interest rates (for otherwise comparable lending opportunities) is empirically insignificant.

The most significant restraint on interregional capital mobility is very likely information costs. For a wide range of savers and borrowers, it is most economical to deposit or obtain funds from lending institutions located nearby. However, several factors facilitate interregional capital flows. These include the existence of secondary markets in a number of important credit instruments, methods to pool and share lending and borrowing opportunities regionally, and the extensive participation of "local" lending institutions and financial intermediaries in national money markets.

Most analysts of regional variations in interest rates conclude that observed differentials are caused by regional variation in mortgage quality, usury law, and information barriers. Recent innovations in the secondary mortgage market (GNMA, FNMA, SBA, etc.) help reduce the differentials, but they still do exist. Yields are the lowest in the Northeast, higher in the North Central, higher still in the South and highest in the West; a pattern which has existed for years. This suggests the need for further refinement of the secondary market.

Rate differences also may be a function of the demand conditions necessary to induce the flow of funds needed for optimal geographic allocation of resources. The recent review by Peterson and Longbrake also suggests that policies designed to improve bank performance through their impact on local market structure branching laws, regulatory structure and institutions' operating efficiency, are unlikely to be successful in reducing inter-regional variations in yields. On the other hand, removal of usury law ceilings would be expected to reduce regional rate differentials and to improve the geographic allocation of funds. This would imply that rates in some areas would go up, but so would the availability of funds. The resolution of this issue involves a trade-off between allocational efficiency and issues of distribution of income, consumer protection, and political considerations.

Other researchers, such as Scott Goldsmith at the University of Alaska, contend that in addition to the usury laws, risk also restricts the free flow of capital. Risk increases with distance from the source of capital, since less is known of places farther away. For both of these reasons, Alaska has difficulty in attracting needed capital. He goes on to say that the usury law which prevented local rates from rising to the required level were blamed for the capital shortage problem; Alaskan investment traditionally needed to pay 1-2 percent above Seattle rates to make investments worthwhile. A period of tight money in the national money markets and interest rates which were inflexible upward prevented the needed flow of capital.

The Alaska experience also has pointed out some tendencies that perhaps exist in Montana. Goldsmith suggests that higher interest in Alaska may be the result of small, non-competitive banks. Goldsmith contends that the problem (interest rates) would have been worse had it not been for branch banks. A recent study by the Minneapolis Federal Reserve bank also contends that branching would result in greater lending competition.

Although data are scare, market imperfections may show up more at the substate level. Cross-sectional comparisons of loan to asset ratios for Montana counties reveal that:

- Faster growing areas have higher loan to asset ratios;
- The loan to asset ratio does not seem to be related to industrial mix;
- Farm communities, however, have a higher ratio of securities to assets; and,
- The smaller, more remote counties have a higher ratio of securities to assets.

5.3 CAPITAL MARKET IMPERFECTIONS

The classical approach to the availability of capital is not without its detractors. One problem is that capital investment depends on **return** and **risk**, and **information.** It has been stated that information in isolated areas of the country about sources of capital, and also information about investment opportunities in those more isolated areas, simply may be harder to come by than in the more populated, developed areas. Also, risks may be perceived as being higher in the less populated, more rural areas, causing greater uncertainty and perhaps inhibiting the flow of capital to those areas. Further, lending officers may simply be more cautious about their investment decisions in more growing, rural areas due to their lack of experience with new businesses. Other sources of regional imperfections in money markets may be the availability and cost of transmitting information and funds, the market power exercised by borrowers and lenders, and the failure of borrowers or lenders to respond to regional differences in interest rates. Also, in recent years, with the high rate of inflation, Montana usury laws have contributed to a decline in the amount of loanable funds available, at least in some banks. There have been times when the cost of new money to banks has been higher than the rates they were permitted to charge.

According to Harry Richardson, a noted regional economist, there are several reasons why the interregional market may be less than perfect. These problems include:

—Risks may be conceived as higher in poor regions, even if relative marginal rates of return were greater, on the grounds that the average return to capital had been lower in the past. Uncertainty can be explained not only in terms of imperfect knowledge about current investment opportunities but also by doubts about regional tax policies, the course of regional demand and other aspects of the future;

—Some investment projects may be so large that, due to indivisibilities capital must flow in very large lumps or not at all. In such cases, marginal adjustments in response to slight regional differences in rates of return will be impossible;

—Another consideration is that the savings-income ratio may be much higher in some regions than in others because of higher incomes, previously high growth rates and/or an above average concentration of property owners. This fact could be an important determinant of capital flows, working independently of those forces which tend toward an equilibrium allocation of resources;

—The most important argument of all against the notions of a perfect capital market and equilibrating capital flows in response to differentials in the rate of return is that they are based on a totally false conception of the nature of inter-regional capital flows and of how they take place in the real world. Most of the existing capital stock is immobile, being "locked" in equipment, machinery and infrastructure and is therefore tied to a particular location. This is in contrast to the existing labor force which is potentially mobile at all times. Thus, physical capital can be shifted only gradually and indirectly by the diversion of replacement investment.

—A substantial proportion of inter-regional capital flows takes place within existing corporations. This reflects the importance of multi-plant firms in a modern industrialized economy. Its significance in this context is that such intra-firm transfers are carried out for reasons other than differentials in relative rates of return, particularly for reasons associated with policies of the individual firms.

—Capital flows on government account—again a substantial share of the total—are totally unrelated to regional rates of return, but are determined by national infrastructure requirements or the demands of regional policy.

—The most important inter-regional capital flows are those which are directly associated either with the establishment of a new plant or the relocation of an existing plant (or other business enterprise). In effect, this means that to this extent it is not a question of the spatial mobility of capital but of interregional location theory.

A similar view is held by Lawrence Litvak and Belden Daniels of Harvard University. They argue that there is accumulating evidence of an abundance of capital market failures. Higher risk ventures go unfunded because of the absence of market mechanisms that could minimize risk to potential capital suppliers. Financial intermediaries do not have accurate or sufficient information about certain kinds of firms. Steeper transaction costs for making and following some loans keep certain businesses out of the credit queue altogether. Some financial institutions with monopoly power raise funding barriers higher than they would be under competitive conditions. Suppliers of capital can be biased for reasons of sex, race or politics. And government regulation in capital markets creates unintended distortions.

According to Litvak and Daniels these capital market failures strike hard at independent, single-establishment firms, which generate over half of the new jobs in our economy. On the whole, these firms suffer from high debt/equity ratios, reflecting their difficulty in raising equity capital through either the public market or venture capitalists. Their debt financing differs from that of large firms as well: it is shorter in term, and when long-term, it is more often supplied by banks than by private sources.

One problem which Litvak and Daniels mention may be particularly important in rural areas of Montana. Bank concentration and lack of branching may restrict credit. Generally, small and young corporations find themselves restricted to local banking markets. For example, firms with total assets of $1 million or less receive about 90 percent of their loans from banks in the same SMSA. Unfortunately, local banking markets tend to be characterized by a high degree of concentration. In some states, such as Georgia, Arkansas, Montana and Kentucky, approximately one-half of all counties have only one or two banks. The fact that market concentration affects the risk-taking behavior of banks has been confirmed in a number of studies. Gardner (1973), in a study of St. Louis, and Haggestad (1977), in a comparative analysis of several metropolitan areas (1977), have found credit rationing to take place in a way which lowers the risk to the bank, rather than raising the return. These studies in urban areas are supported by similar studies in isolated rural banking markets by Fraser and Rose (1971), Chandross (1971) and McCall and Peterson (1977). They all found that the entry of a new bank into a county with few banks resulted in "dramatic changes in the existing banks' portfolios."

There has been a number of studies examining the cost and availability of capital to small firms. The most recent empirical study, by Kieschnick and Daniels (1978), reviewed previous studies and reported on new research based on the FTC Quarterly Financial Reports. The conclusion of the study was straightforward: for manufacturing firms below $1 million in assets, there exists a major discrepancy between profitability and the existence of barriers to obtaining long-term debt and equity. This result is consistent with most previous studies of small business finance, which found that barriers exist for quite small manufacturing firms seeking long-term debt and equity. No acceptable evidence has been produced showing undeserved barriers for service or commercial firms, or for medium-sized firms. For the very small manufacturing firms, the conventional picture of well-organized capital markets simply does not become reality.

The sources of capital in the initial phase of business formaticn generally are of a personal nature. Of 69 new manufacturing firms recently surveyed in Buffalo, Cincinnati, Atlanta, and Salt Lake City, personal savings accounted for 81.0 percent of the initial capital for the average firm. Identifiable bank loans accounted for 2.2 percent and other loans (which include those from personal friends and undoubtedly some bank loans not identified as such by D&B) accounted for 13.4 percent. Other sources of capital—predominantly personal contributions of equipment (a form of personal savings or equity)—contributed 8.2 percent. In 75 percent of the cases, personal savings and equipment contributions accounted for all starting capital. In those cases with debt present, debt accounted for 62.2 percent of initial capital.

The study also revealed that those businesses (manufacturers) with initial debt appear to be excessively leveraged, and remain so, even though "start-up" takes place ouside the bounds of organized capital markets. This pattern of reliance on personal or internal funds or heavy debt persists throughout the early years of the firm. Furthermore, the venture capital (retained earnings or individual saving) picture does not appear to be different for new service or commercial firms who also rely heavily on friends, family, personal savings, second mortgages, and life insurance policy loans.

Clearly, sufficient venture capital is necessary before any business can borrow money from conventional lending institutions. A sound equity position or borrowing base (value in excess of claims or liens against property) is one of the more important prerequisites of obtaining commercial bank financing. For big loans this is probably every bit as important as an established business record.

A growing company, one that has demonstrated that it can sustain itself by competing in the market, needs continual financing to foster growth. If fortunate, the firm can borrow enough capital, draw upon internally generated funds, sell out to a larger company or sell equity ownership in the business. This option, however, may be one that many small business owners are reluctant to use, particularly if the stockholders are not active business participants.

6 ENERGY

6.0 INTRODUCTION

All industrialized nations are heavily dependent upon readily accessible and concentrated sources of energy. Without such sources of energy, industrial activities will cease and derivative standards of living will plummet. Initial development of industrial economies was sustained by easily recovered fossil fuels—in most cases, coal. During the mid-twentieth century, oil and natural gas became the fossil fuels of choice in support of industrial activities, except in those few areas blessed with abundant water power.

Examples of oil-based, energy intensive industrialization are common in most regions of the world. The distribution of the resources that support industrial economies is not so common. Those resources that sustained the early growth of industrial economies have been exhausted, outstripped or have become too expensive to recover and use. As a result, many industrialized nations have become inceasingly dependent upon imports from a dwindling number of resource rich nations. Many of those nations still possessing vast energy reserves have begun to realize their worth and finite nature. Others are becoming nationalistic. The result has been manipulation of the production and prices of those resources, either to prolong the recoverable life of the resources or to achieve national aims.

Energy prices and scarcity are forcing industries and the industrialized nations to reexamine resource development practices and to pusue alternative means of sustaining themselves. As a result, increased attention has been paid to development of less desirable energy reserves, to development of alternative forms of energy and to conservation of existing energy resources.

6.1 RECENT TRENDS IN ENERGY USE

The nation's response to the energy crisis has been somewhat erratic. As yet, no comprehensive or consistent national energy policy has been articulated. Efforts to resolve the energy crisis have been attempted on three broad fronts.

First, increased production of finite domestic energy reserves has been advanced as a partial solution to the nation's dependence upon foreign energy sources. Economic incentives for increased location and production of oil and natural gas have been instituted. Federal subsidies of the development of synthetic fuels from coal, oil shale and tar sands have been pursued. The mining of coal has increased nationwide—still greater increases are planned and underway. Nuclear power continues to receive advocacy on the part of some industrial concerns and the federal government, despite increasing public and scientific concerns over its safety, cost and efficiency.

Second, rising prices and the scarcity of resources have made energy conservation a higher priority. The public, industry and the federal government are reevaluating their uses of energy and the efficiency with which energy is used. This activity is reflected in the marketplace, in investment decisions and in corporate and government research programs. Energy conservation has great potential in the United States—many highly industrialized nations consume less than one-half the energy, per capita, than is consumed in the United States.

Finally, the development and use of energy from renewable sources has received increased emphasis. Energy from the sun, wind, biomass conversion, municipal waste and water can serve as a supplement to higher technology energy sources as well as a sole source of lower technology end uses (e.g., space heating, domestic uses).

Pursuit of all three avenues to greater energy self-sufficiency will affect Montana. Increased demands for coal, for immediate end use or as feedstock for synfuels, will be felt in Montana's coal fields and communities. Development of synfuels technology may result in the siting of either test or commercial production facilities in Montana. Public and private sector conservation activities may, in turn, affect demands for coal. Montana's abundant renewable energy resources also are likely to receive increased attention at the state, regional and national levels.

6.2 MONTANA'S ENERGY RESERVES

Montana is underlain by massive amounts of coal. The U.S. Geological Survey has estimated that some 448,639 million tons of coal and lignite lie beneath Montana's surface. Of that total, 50,041 million tons now are considered economically strippable. Of the strippable reserves, approximately 34,500 million tons are sub-bituminous coal; the remainder is lignite. Montana coals are relatively accessible—they lie in thick seams, usually under less than 300 feet of overburden. Although much of Montana's coal is sub-bituminous, and therefore has less heat value, its low-sulfur content, favorable ash characteristics and accessibility make it attractive to coal consumers.

The Montana Oil and Gas Conservation Division has estimated that proven oil reserves in the state constitute approximately 236 million barrels of oil. At current oil production rates (approximately 30 million barrels per year), this reserve would sustain about eight years of production. Rising world prices of oil are expected to stimulate increased oil exploration—oil exploration activities have increased in Montana.

The availability of natural gas in Montana was an issue of great concern only a few years ago. Recent purchases of in-state reserves by Montana gas suppliers and the potential of additional Canadian reserves have allayed these concerns for the near future. The American Gas Association has estimated that Montana's known recoverable natural gas reserves constitute about 1106 trillion cubic feet of gas. Undiscovered reserves have been estimated at from 3 to 7 trillion cubic feet. It should be added that the existence of these reserves is no guarantee of their use in Montana markets. In addition, much of the land underlain by suspected gas reserves is in federal ownership and is subject to federal resource management policies.

Montana's installed hydroelectric capacity has been constant since 1972. A number of proposals to expand that capacity has been advanced by federal agencies and the private sector. One proposal, to expand the generating capacity of Libby Dam by 420 megawatts, has been enjoined in a Montana District Court. Other proposed facilities include the addition of 90 megawatts of capacity at Canyon Ferry Dam; a proposal by Northern Lights, Incorporated, to install a 150-megawatt facility on the Kootenai River; and feasibility studies by the Corps of Engineers and the Bureau of Reclamation for expansion or construction of additional facilities at Fort Peck Dam, the Flathead-Clark Fork Basin, the Upper Missouri, the Sun River and the Marias River at Tiber Dam. Existing hydroelectric facilities in Montana are identified by site, owner, date of completion and name-place capacity in Table 14.

TABLE 14

Existing Hydroelectric Capacity in Montana

Existing Power Plants	Type	Owner	Year of Completion	Name Plate Capacity (MW)	Location
1. Madison	H	MPC	1912	9.0	Madison River
2. Hauser	H	MPC	1912	17.0	Missouri River
3. Holter	H	MPC	1918	38.4	Missouri River
4. Black Eagle	H	MPC	1929	16.8	Missouri River
5. Rainbow	H	MPC	1929	35.6	Missouri River
6. Ryan	H	MPC	1929	48.0	Missouri River
7. Morony	H	MPC	1930	45.0	Missouri River
8. Cochrane	H	MPC	1957	48.0	Missouri River
9. Mystic Lake	H	MPC	1927	10.0	West Rosebud Creek
10. Flint Creek	H	MPC	1935	1.0	Flint Creek
11. Milltown	H	MPC	1929	3.0	Clark Fork River
12. Thompson Falls	H	MPC	1929	30.0	Clark Fork River
13. Kerr	H	MPC	1938	168.0	Flathead River
14. Noxon	H	WWP	1960	230.0	Clark Fork River
15. Big Fork	H	PPL	1930	4.3	Swan Lake
16. Fort Peck	H	CE	1940	165.0	Missouri River
17. Canyon Ferry	H	BR	1954	50.0	Missouri River
18. Hungry Horse	H	BR	1953	285.0	S. Fork Flathead River
19. Yellowtail	H	BR	1966	250.0	Bighorn River
20. Big Creek	H	FIP		0.4	Big Creek
21. Troy	H	MLP	1916	4.5	Lake Creek
22. Libby #1	H	CE	1975	105.0	Kootenai River
23. Libby #2	H	CE	1976	105.0	Kootenai River
24. Libby #3	H	CE	1976	105.0	Kootenai River
25. Libby #4	H	CE	1976	105.0	Kootenai River
TOTAL EXISTING HYDROELECTRIC CAPACITY				1,878.92	

SOURCE: Montana Energy Advisory Council

Acceptance of solution mining techniques for in situ removal of uranium ores has led to increased uranium prospecting activity in Montana. According to the Montana Bureau of Mines and Geology, likely areas for discovery of exploitable uranium ore in Montana lie within the Big Hole drainage, the Ruby Valley and the Carter and Carbon County quadrants in Eastern Montana. Some quantities of pitchblende have been noted in Northwestern Montana, near the Idaho border. According to sources in the Montana Department of State Lands, uranium prospecting activities are occurring in many areas of the state.

6.3 ENERGY PRODUCTION AND CONSUMPTION IN MONTANA

The influence of national and world energy affairs upon Montana was alluded to in the introduction of this chapter. A further example will be presented here. Despite worldwide efforts to substitute other fuels for it, oil remains the primary energy base of the industrialized economies—53 percent of the world's energy budget was provided by oil in 1978. Oil comprised 47 percent of the United States' energy budget in the same year—it is expected to provide 38 percent of the nation's energy budget in 1990.

Energy consumption in the United States is expected to increase nearly 20 percent in the next twenty years. The nation's planners expect energy sources other than oil to sustain the significant portions of this increase. Coal is projected to provide 27 percent of the nation's energy budget by 1990—an increase of 42 percent over 1978 levels.

The data presented in Table 15 illustrates the relationship between alterations in the mix of energy resource use. These data also indicate that, despite the effects of energy conservation and declining rates of growth in energy use, development of some energy resources must be increased, if the status quo is to be maintained.

TABLE 15
Growth of Energy Consumption in United States, by Energy Resource, in Percent Per Year (Five Year Average Rates)
Percent Growth in Average Yearly Rates of Resource Consumption

Resource	'67-'73	'70-'74	'71-'75	'72-'76	'73-'77	'74-'78
All energy	3.4	1.7	0.8	1.3	1.0	0.9
Oil	5.2	3.3	2.1	2.8	2.3	1.2
Natural Gas	1.9	−0.2	−2.0	−2.4	−3.0	−2.4
Coal	0.9	0.3	−0.3	1.9	2.5	1.2
Nuclear & Hydro Power	47.4	51.4	51.4	39.9	35.5	29.0

SOURCE: Chase Econometrics, Inc.

The production of energy in Montana in recent years is presented in Table 16. The rate of change in coal production is quite interesting—it has been extremely erratic. Note also the absolute decline in oil production and the decline in the growth rate in natural gas production.

Montana consumption of energy in recent years is presented in Table 17. Energy use by consumption sector is presented in Table 18. The greatly increased consumption of coal is due to the operation of coal-fired electric generation plants and to the shift from natural gas to coal by some industrial concerns. Note in Table 18 that energy consumption in Montana has increased at a far greater rate than in the nation (see Table 15). Note also that this increase has not occurred solely in the industrial sector—residential consumption of energy has increased at a rate greater than total state energy consumption. In addition, and in spite of increased prices of petroleum products, transportation sector energy consumption also has increased markedly since 1965.

TABLE 16
Montana Production of Energy by Energy Type in Physical Units
Five Year Increments, 1960-1978

Resource	1960	1965	% Change	1970	% Change	1975	% Change	1978	% Change
Sub-bituminous Coal (1000 tons)	113	63	−44	3,124	4,858	21,620	592	26,390	22
Lignite Coal (1000 tons)	200	301	51	323	7	520	161	289	−44
Total Coal (1000 tons)	313	364	16	3,447	847	22,140	542	26,679	21
Natural Gas (MM cubic feet)	35,381	27,873	21	37,445	34	44,546	19	47,140	6
Oil (1000 bbls)	30,240	32,778	8	37,879	16	32,844	−13	30,467	−7
Hydropower (MM Kwhr)	5,801	8,389	45	8,745	4	9,560	9	11,708	22
Wood & Waste (MM Kwhr)	N/A	37	N/A	73	97	14	−81	52	271

SOURCE: Historical Energy Statistics. Montana Department of Natural Resources and Conservation, 1980

TABLE 17
Montana Consumption of Energy by Energy Type in Physical Units

Five Year Increments, 1960-1978

Resource	1960	1965	% Change	1970	% Change	1975	% Change	1978	% Change
Coal (1000 tons)	253	368	45	762	107	1,144	50	3,389	196
Natural Gas (MM Cubic feet)	55,689	70,724	27	87,791	24	79,520	- 9	72,649	- 8
Petroleum (1000 Bbls)	20,120	20,039	0	22,007	10	27,032	23	31,595	17
Hydropower (MM Kwhr)	4,972	6,153	24	8,317	35	7,886	- 5	8,713	10
Wood & Waste (MM Kwhr)	-0-	37	N/A	73	97	14	-81	52	271

SOURCE: Montana Department of Natural Resources and Conservation, 1980

TABLE 18
Consumption of Energy in Montana by Consumption Sector In Trillion BTU

Five Year Increments, 1960-1978

Trillion BTU

Consumption Sector	1960	1965	% Change	1970	% Change	1975	% Change	1978	% Change
Residential	31.430	36.218	15	44.238	22	48.810	10	63.000	29
Commercial	35.050	37.767	8	39.228	4	41.246	5	51.481	25
Industrial	67.759	79.615	17	100.642	26	103.667	3	125.465	21
Transportation	56.409	57.190	1	68.369	20	81.667	19	97.110	19
Total	190.648	210.790	11	252.477	20	275.390	9	337.356	23

SOURCE: Department of Natural Resources and Conservation, 1980

TABLE 19
Proportionate Consumption of Total Energy Consumption by Consumption Sector, Montana

Five Year Increments, 1960-78

Percent Total Consumption

Consumption Sector	1960	1965	% Change	1970	% Change	1975	% Change	1978	% Change
Residential	16.4	17.1%	4	17.5%	2	17.7%	1	18.6%	5
Commercial	18.3	17.9	-3	15.5	-13	14.9	-4	15.2	-2
Industrial	35.5	37.7	6	39.8	6	37.6	-6	37.1	-1
Transportation	29.5	27.1	-8	27.0	0	29.6	6	28.7	-3
Total	100.0%	100.0%		100.0%		100.0%		100.0%	

SOURCE: Department of Natural Resources and Conservation

Proportionate consumption of total energy consumed in Montana, by consumption sector, is presented in Table 19, for selected years.

The data in Table 19 reaffirm the changes in energy consumption suggested in Table 18. The industrial energy consumption sector remains the dominant one, but residential consumption of energy has exceeded the consumption of the commercial sector. Energy consumption in the transportation sector remains the second largest of the four sectors.

Montana's appetite for gasoline is tied for third highest in the nation. In 1978, Montana consumed 27 percent more gasoline per capita than the national average. The highs and lows of consumption ranged from 842 gallons per person in neighboring Wyoming to 330 gallons in New York, versus Montana's consumption rate of 655 gallons.

Almost all of the variation (98%) in consumption of nonfarm related gasoline can be explained by three variables: the relative number of motor-vehicle registrations, fleet efficiency, and state population density, although the last factor is far less important. In Montana, there are 1.13 vehicles per person, far and away the highest of any state, versus an average of .71 nationally. Interestingly, gasoline use per vehicle in Montana is very low, second only to Colorado. Given Montana's mix of automobiles, motorcycles, buses, and trucks (nonfarm) relative to the U.S. norm, one would expect that gasoline consumption per registered vehicle would be much higher, but it is not. Perhaps Montanans drive their vehicles less; not necessarily shorter distances per trip, but less often. Clearly, gasoline use is lower here for purposes of commuting but shopping trips (about 18 percent of all trips) from rural areas to cities and towns might tend to offset gains due to commuting. The third factor, population density per state, is significant in terms of statistical explanation, but much less influential than the first two. In this case, our lower population density reflects the fact that the average trip length **may** be higher than the rule.

The difference between production and consumption of energy in Montana is presented in Table 20, by energy type. Negative balances between production and consumption imply that energy was imported to meet Montana needs. Positive balances imply the export of energy. The data are entered in trillions of BTU to simplify comparison. It is important to note that Montana has been a consistent net exporter of energy. Energy reserves must be developed where they are found, **if decisions have been made that such development is necessary.** Arguments that no energy should be exported are as spurious as those that hold that the import of some energy forms, or goods and services, justify the wholesale exploitation of areas where energy reserves are to be found. Spurious as they may be, both arguments have been and probably will be advanced.

6.4 ENERGY DEVELOPMENT EFFECTS

The effects of industrial development usually are portrayed in terms of population growth, increased employment opportunities, increased growth in derivative economic sectors and increases in incomes and tax revenues. These portrayals are insufficient. In most cases, economic benefits are gained at some cost, whether economic, social, environmental or a combination of all three. Large and rapid industrial development in rural areas typically has imposed significant burdens upon indigenous populations, local economies, social systems, governmental structures, other environmental resources and ecosystems. This is particularly the case when development is of short duration. In Montana, as well as in other resource development areas, it remains to be seen whether the benefits of such development will exceed the costs. Much has been written in attempts to determine the balance of development costs and benefits—interested readers are urged to read development policy papers and environmental impact statements engendered by energy resource development in this region.

Montana has taken steps to protect itself in the energy development process. Strict procedures have been enacted which govern the siting and operation of energy resource development. Tax laws have been enacted to help ensure that development not only pays its own way but also leaves some resources behind when operations cease. The importance of these laws is made quite apparent by the ARCO closures in Anaconda and Great Falls. The adequacy of these precautions remains to be assessed. So also does their feasibility—efforts are underway at the national level to abrogate Montana's development taxes and siting procedures.

TABLE 20
Comparison of Production and Consumption of Energy in Montana, by Major Energy Type for Selected Years

Expressed in Trillions of BTUs

	COAL			NATURAL GAS			PETROLEUM			HYDROELECTRIC			TOTAL		
Year	Production	Consumption	Difference	Production	Consumption	Difference	Production	Consumption	Difference	Production	Consumption	Difference	Production	Consumption	Difference
1960	4.578	4.279	.299	35.381	57.638	-22.257	169.646	111.787	57.859	19.793	16.964	2.829	229.398	190.668	38.730
1965	5.015	5.828	-.813	27.873	72.987	-45.114	183.884	110.855	73.029	28.623	20.994	7.629	245.521	210.790	34.731
1970	58.869	12.231	46.638	37.445	90.513	-53.068	212.501	121.106	91.395	29.838	28.378	1.46	338.902	252.477	86.425
1975	385.110	18.802	366.308	44.546	81.117	-36.571	184.255	148.515	35.74	32.619	26.907	5.712	647.008	275.389	371.619
1978	465.586	59.163	406.423	47.140	73.828	-26.668	170.920	174.375	-3.455	39.948	29.729	10.219	723.771	337.272	386.499

SOURCE: Department of Natural Resources and Conservation

6.5 SOME QUESTIONS

Resource Allocation

The nation and Montana clearly face an energy crisis. Until an acceptable solution to the energy crisis is found, coal reserves will be developed to provide an interim source of supply. To the degree that national survival is tied to large scale development of fossil fuel reserves, Montana must expect to provide significant quantities of them. However, increasing numbers of citizens and scientists are coming to recognize that true national survival is more apt to be achieved through pursuit of some alternative to the concept of infinite growth in resource consumption. Until a rational decision is made at the national level defining the course to be pursued, careful and conservative allocation of remaining resources is a sensible approach.

The impact of coal allocation decisions upon the allocation of other resources, renewable and nonrenewable, cannot be ignored. Decisions to develop coal on a large scale will have obvious effects upon the demand for land, air, water and construction materials. Those decisions also will increase the pressure upon such resources as open space, wilderness, wildlife species and other recreational resources. Finally, resource allocation decisions will impose significant demands upon human resources, ranging from public institutions to social relationships and individuals. Some of the resources to be affected are renewable, others are not—including small, rural agricultural communities.

The Montana Life Style

Much has been made of the Montana life style in discussions of energy development. Although few seem willing to define the term, most seem to understand it. To the degree that the Montana life style is dependent upon a rural atmosphere, open spaces, enjoyment of and an acknowledged dependence upon the natural environment, and a relatively unhurried way of doing things, energy development will affect it. Some energy industrialization likely can be accommodated by the Montana life style.

The Nature and Duration of Energy Resource Development

Montanans probably will play only a small role in the nation's choice of a resource allocation alternative. However, once the decision has been made and Montana-based resources are slated for development, Montana law and policy should play a significant role in shaping the nature and duration of development within the state's bounds. Montanans must consider several issues in order to meet this role in resource development. The issue of the nature and duration of energy development that may be beneficial to and tolerated by Montana is an important one.

Montana history provides ample testimony to the tragedy of "boom and bust" economies. Although some economists state that the likelihood of a coal "boom and bust" is small, others disagree. The coal reserves in Montana probably will remain marketable for quite some time, as the number of uses for coal increases and competing fossil fuels near exhaustion. However, the fates, of various coal development alternatives are not as certain. The possibilities of a coal "bust" probably can be minimized if coal development in Montana is limited to well planned, carefully dispersed mining and very selective conversion activities. In a period when energy conversion technologies and related research are in a state of flux, it could be dangerous to commit the state's future to energy development activities and technologies that may be replaced in the near future. For that matter, some industrial and federal spokesmen have begun to indicate an awareness that load center conversion of fossil fuels may be preferable to mine mouth conversion.

Energy development will provide jobs, very high paying jobs. However, the number of such jobs is somewhat limited. Judging from the Colstrip I & II experience, the majority of jobs created by energy conversion activities will require highly skilled, specialized labor. At Colstrip, the investors were obliged to import laborers from other states and from Canada to fill all available jobs. Most unemployed persons in Montana are seasonal and semi-skilled workers, though some skilled laborers also are unemployed. Unemployed Montanans may not qualify for many of the direct employment opportunities that energy development will provide. Coal mining is another matter; many jobs can be filled by residents and they also pay nearly double the state average income.

The matter of compatability between economic activities also bears some examination. No definitive data have been collected regarding the specific degree of compatability between agriculture and energy industrialization. Studies conducted by various groups responsible for environmental impact statements do permit some inferences, however. Energy industrialization on a massive scale places severe strains upon community relationships and community services when sited in rural areas. Although, as economic studies have indicated, the dollar value of agricultural productivity cannot compete with that of coal for given land areas, agriculture is based upon renewable resources—coal development is not.

7 REGIONAL ECONOMIC TRENDS AND CONDITIONS

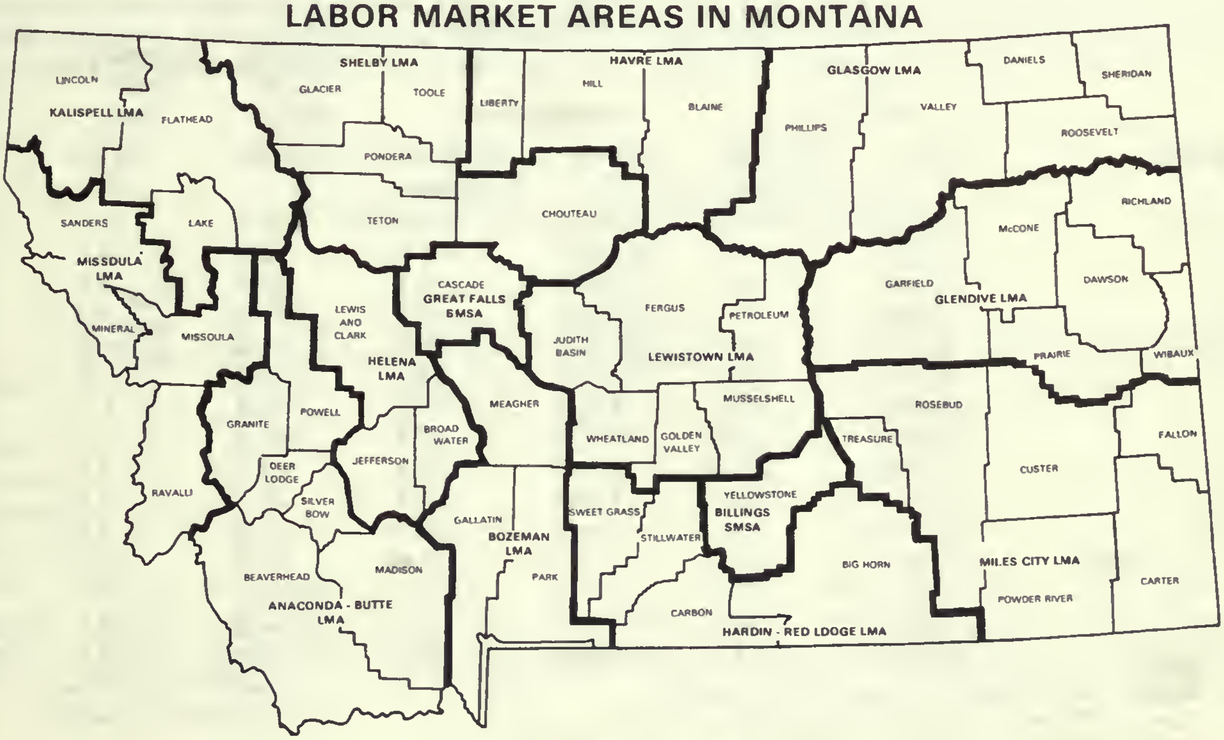
7.0 INTRODUCTION

Economic conditions in Montana vary between different areas of the state. The eastern two-thirds of Montana is on the Great Plains, and is characterized by dryland grain farming, irrigated strips, grazing rangeland, large ranching operations, and by oil and natural gas wells and coal mines. The state's two largest urban areas, Billings and Great Falls, are found here. In addition, more medium-sized trade centers and numerous small towns dot the landscape.

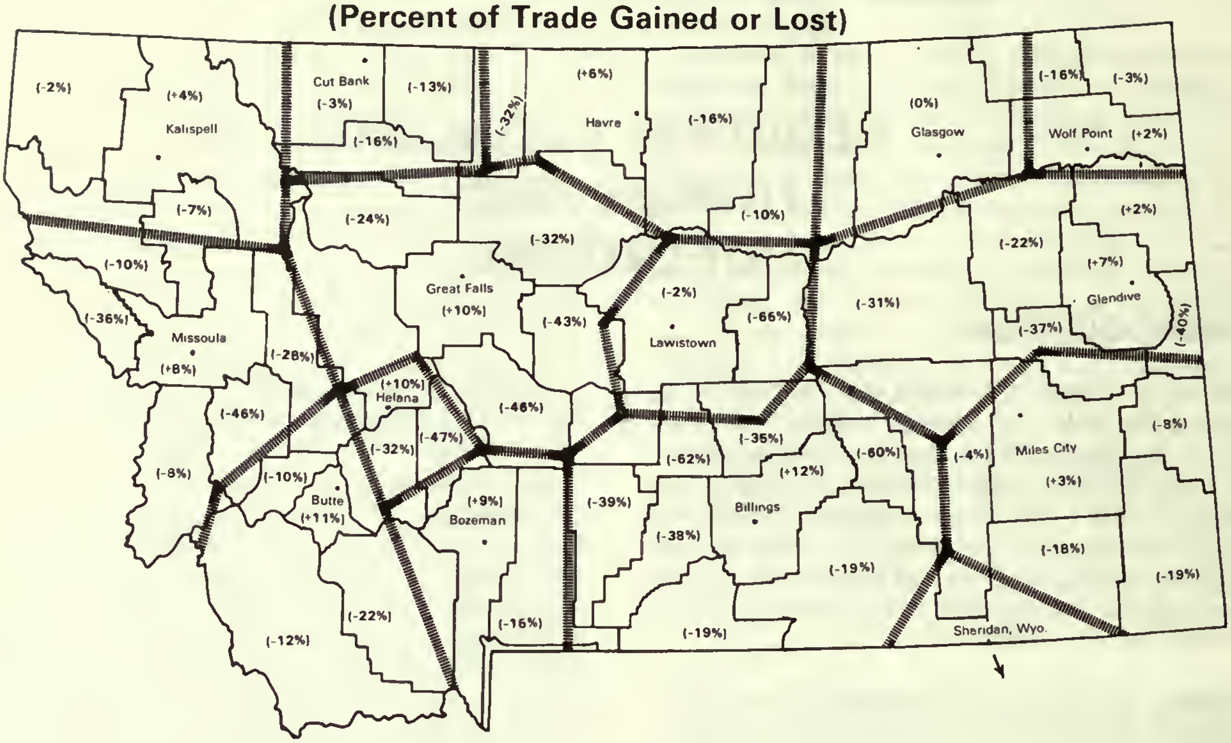
The western third of the state lies within the northern Rocky Mountains. This is an area of spectacular scenery and outdoor recreation, timber harvesting and wood processing, mining and mineral processing, irrigated farms and mountain ranches, and populated pockets and virtually uninhabited wildlands. Because of continued in-migration and generally greater job opportunities, most of the state's larger urban areas are found here.

In order to disaggregate the state's economy, it is necessary to delineate the regions with some degree of homogeneity. Although this is difficult to do with any degree of precision in a large rural state like Montana, the Montana Department of Labor and Industry has divided the state into 14 Labor Market Areas (LMA's) which roughly approximate local trade areas, with several notable exceptions. In the far eastern and southwestern part of the state, trade will leak to neighboring states. Also, Yellowstone and Cascade Counties (Billings and Great Falls) draw significantly from surrounding counties, but are treated as separate LMA's. In the following discussion we will disaggregate the state into the LMA's, which are shown in Map 1. Map 2 provides the trading area for principal cities and an estimate of how much is "lost or gained" between counties; for example, Billings gets 12 percent of its trade from other counties. Negative values indicate trade losses to other areas.

MAP 1
LABOR MARKET AREAS IN MONTANA



MAP 2
MONTANA PRIMARY RETAIL TRADE AREAS
(Percent of Trade Gained or Lost)



NOTE Numerical values indicate trade losses (-) or gains (+) between counties

SOURCE: Western Analysis, Inc.

Table 21 shows comparative data for the LMA's for the period 1970-1980. Employment and population growth has been greater in western Montana than in the eastern part of the state. However, the greatest population decline also occurred in western Montana—Anaconda-Butte—as a result of a reduction in mineral

TABLE 21
LMA Growth Comparison

Labor Market Area	Population 1980	Population 1970-80 % Change	Employment 1979	Employment 1970-79 % Change	Employment Ratio 1979-80 %	Unemployment Rate 1979 %	Per Capita Income 1978 $
Yellowstone	107,659	23.2	53,290	57.6	49.5	3.7	$8036
Cascade	80,639	−1.4	31,932	16.2	39.6	6.2	7617
Missoula	110,092	33.1	46,920	50.2	42.6	6.6	6550
Kalispell	88,291	22.7	36,247	47.1	41.0	7.3	6364
Anaconda/Butte	73,708	−8.1	32,335	10.1	43.9	5.9	6983
Bozeman	57,648	25.8	25,377	34.7	44.0	4.2	6317
Helena	53,356	30.0	26,638	47.3	49.9	5.0	6670
Shelby	34,540	−3.6	16,835	21.7	48.7	5.0	8586
Glasgow	34,269	−5.0	16,657	27.8	48.6	3.9	6862
Miles City	32,108	14.1	14,683	28.5	45.7	3.9	6862
Glendive	31,743	9.5	14,493	26.4	45.7	2.8	6574
Hardin/Red Lodge	27,972	15.4	12,257	32.5	43.8	4.2	6106
Havre	27,243	3.0	12,510	31.0	45.9	4.7	7065
Lewistown	24,131	4.3	10,827	17.7	44.9	3.6	7327
STATE	783,399	12.8	351,000	34.4	44.8	5.1	$7092

SOURCES: Bureau of the Census, U.S. Department of Commerce
Bureau of Economic Analysis, U.S. Department of Commerce
Research and Analysis Section, Montana Department of Labor and Industry

processing activities there. Employment growth was the greatest in Yellowstone County, the home of Billings, which showed over a 50 percent increase over the ten year period. The employment ratio, the percent of the population employed, is generally higher in eastern Montana. As discussed earlier, this is a result of the higher unemployment rates in western Montana which are due to the greater rate of in-migration and the more seasonal nature of the tourism and wood processing sectors. In 1978, average per capita income appeared to be roughly 7 percent greater in the rural, eastern part of the state than in the western part. This was a year of about average agricultural prices and wood products employment. Again, the income differences may be due to the relatively greater degree of population growth and employment seasonality in western Montana. Table 22, which shows current employment composition in the LMA's indicates a substantial degree of variation in the type of economic activity between Montana's regions.

7.1 REGIONAL OUTLOOK

YELLOWSTONE

The Billings economy is the growth leader in Montana; it has the greatest population of any urban area in the state and since 1970, has enjoyed the greatest employment growth (57 percent) of the five major urban areas. Its unemployment rate has been three-fourths of the state average and, in 1978, the per capita income in Yellowstone County was about 13 percent greater than the state average.

Billings is growing in importance as a regional trade center for the northern great plains area, stretching from western North Dakota to northern Idaho and the Canadian border to northern Wyoming. Billings has almost 5000 employees working in wholesale trade, or 30 percent of the state's total. There is some evidence that this recent growth in wholesale trade may be due to a decentralization of this industry away from large regional trade centers toward smaller trade centers. Supporting its importance as a trade center is the fact that almost 19 percent of Billings' total employment is in retail trade, compared with 15 percent for the state as a whole.

Billings also is becoming an important location for the regional offices of mining and energy related companies, and those manufacturing and service industries which support the oil, gas, and coal mining development taking place in the northern great plains.

Finally, Billings has the most diversified economy of any LMA in the state. The rate and magnitude of its growth, coupled with its size, simply means that a more diverse array of derivative economic sectors can be supported. Primary economic activity in the area is driven by various industries, including oil refining, food processing, the federal government, agriculture, export components of wholesale and retail trade, and education.

CASCADE

Cascade County, the site of the city of Great Falls, was one of only four LMA's in the state which had a net decrease in population during the 1970's. Although employment grew 16 percent over this time period, this was the second slowest rate of growth of the LMA's, and only one-half that of the statewide average. In 1979, the Cascade County unemployment rate was 20 percent greater than the state average, although in 1978 the per capita income was about 7 percent above the figure for the state as a whole. This may be due to the salaries associated with Malmstrom Air Force Base, which directly and indirectly contributes to about one-half of the economic base in Cascade County.

TABLE 22

Percent of Employment by Labor Market Area

1979

	Anaconda-Butte	Billings	Bozeman	Cascade	Glasgow	Glendive	Hardin-Red Lodge	Havre	Helena	Kalispell	Lewistown	Miles City	Missoula	Shelby
Agriculture	6.9	3.1	8.0	3.0	25.2	21.6	23.6	18.0	4.0	7.4	25.1	18.5	4.1	23.4
Mining	7.3	0.8	0.3	0.0	2.0	6.0	8.1	0.7	0.2	0.7	2.6	4.8	0.2	6.3
Construction	2.5	4.9	4.5	5.1	2.1	4.9	3.3	3.4	3.5	5.3	4.3	4.8	5.3	2.8
Manufacturing	7.1	8.4	7.7	4.4	2.7	3.1	1.5	2.4	5.7	17.5	3.5	1.6	13.6	1.8
Transportation/ Communications	5.1	7.8	6.8	4.9	4.8	9.5	2.9	9.0	7.1	5.6	4.5	6.7	6.4	4.4
Trade and Service*	47.6	60.2	52.5	54.7	44.7	40.4	40.4	47.1	50.2	46.6	42.3	43.9	52.0	42.6
Government	23.5	14.7	20.2	27.9	18.5	14.5	20.2	19.5	29.3	16.9	17.6	19.6	18.4	18.3
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

SOURCE: Department of Commerce

*NOTE: includes nonfarm proprietors

The relatively slow economic growth in Great Falls can be traced primarily to several major cutbacks since 1970 in federal military and civilian employment and primary metals refining. Cutbacks at the air base in 1976 and 1979 have resulted in the loss of about 1,800 permanent civilian and military jobs. Anaconda's zinc smelter closed in 1973 with a loss of about 1,000 jobs. Also, about 200 workers lost their jobs when some railroad positions were transferred and a meat packing plant was closed in the mid-1970's. These cutbacks alone resulted in the loss of roughly one-fourth of the economic base in the county.

Recently, ARCO announced the closure of the copper refineries, resulting in the loss of about 500 highly paid workers. However, Great Falls continues to experience growth as a wholesale and retail trade center. Cascade County has 17 percent of the state's wholesale trade employment and serves as a retail trade center for the large, relatively prosperous farming community in northcentral Montana.

MISSOULA

The Missoula LMA includes four counties west of the Continental Divide and bordering Idaho. Its economy is dominated by Missoula County which has almost three-fourths of the LMA's employment and serves as a regional trade center for the four county area.

The Missoula LMA experienced rapid growth during the decade; population grew by 33 percent and employment by 50 percent, both of which are significantly greater than the state average. Much of this growth is due to the wood products sector. The unemployment rate is generally greater than for the state, and per capita income is roughly 8 percent lower, partly the result of the student population. The high unemployment may to a limited degree be the result of in-migration to this area, particularly in Ravalli and Missoula counties, because of the high quality natural surroundings and perceived job opportunities. However, much of the employment growth is seasonal and in part-time positions, resulting in the lower than average income level.

About one-half of the economic base in the LMA is due to the local forest resources. About 33 percent of the state's timber harvest comes from this LMA, which produces over one-third of the state's lumber. Missoula has the state's only pulp and paper plant, which currently is expanding, resulting in an increase of 300 jobs; two plywood manufacturing facilities; and a particle-board plant which opened during the last decade. In addition, the U.S. Forest Service, BLM, and Montana Division of Forestry employ about 1,100 people in Missoula. Mineral and Sanders counties are heavily dependent on wood products and several small communities are largely one-industry towns. Some smaller mills have closed since 1970, notably in Plains and Hamilton.

Other major factors in the area's economic base include the University of Montana in Missoula, which contributes directly and indirectly about 15 percent of all economic activity, travel and tourism which we estimate contributed about 5 percent of total employment, and wholesale and retail trade, which accounts for about 8 percent of the economic base in Missoula County.

KALISPELL

The Kalispell LMA includes three northwestern Montana counties bordered by Glacier National Park on the east, Flathead Lake on the south, and Idaho and Canada. Flathead County contains about 60 percent of the LMA's employment and population, and was largely responsible for the 47 percent increase area in employment since 1970. In fact, Flathead County had the greatest increase in employment (67 percent) of any county in the state since 1970. Significant in-migration to the area, in response to its natural beauty, and the seasonality of its wood products and tourism-based economy, also have caused the LMA to consistently have the highest unemployment rate in the state. In 1979, the unemployment rate was 7.3 percent, about 50 percent greater than the state average.

Over one-half of Montana's timber harvest comes from these three counties; about one-half of the lumber production similarly is based here. Also, three plywood facilities and one medium density fiberboard plant are located here. Many small communities are primarily dependent on logging or processing activities associated with the area's forest resources. About 37 percent of the area's economic base is directly due to wood products processing.) The other major employer in Flathead County is the Anaconda Aluminum smelter at Columbia Falls, employing 1,300 highly paid workers.

Travel and tourism also play a major role in the local economy. Flathead Lake, the largest inland body of water west of the Mississippi River, and Glacier National Park, are major draws. In addition, Big Mountain Ski Area in Flathead County is a major destination resort and attracts the greatest number of skiers of any area in the state. Finally, many second homes are being constructed in the area by in-state and out-of-state residents. All these factors contribute to the travel and tourism industry, which contributes roughly 10 percent of the employment in Flathead County.

Currently, ASARCO is developing an underground copper mine near Troy which will employ about 300-400 workers when it is in full production. Oil and gas exploration along the overthrust Belt region should continue during the 1980's. Public timber harvests will remain an important issue to the wood products industry. The region's unsurpassed beauty will continue to make the travel industry important to the local economy.

ANACONDA/BUTTE

The Anaconda/Butte LMA encompasses six southwestern Montana counties, and is dominated by the cities of Butte and Anaconda, which today contribute about two-thirds of the area's economic activity. The other counties are largely rural and dependent on ranching and livestock-related agricultural production, and some small logging and wood processing activities.

The loss of roughly 2,400 copper mining and mineral processing jobs since 1970 in Anaconda and Butte is the major factor behind the region's stagnant economy. This LMA has had the slowest rate of employment growth in the state and an 8 percent loss in population since 1970. The unemployment rate for the area has been consistently above the state average, wholly due to the high rate of joblessness in Butte and Anaconda. Per capita income levels are close to the state average and are dependent upon employment levels in the mineral related industry and the price of agricultural products in the more rural areas.

Since 1970, the Montana Energy Research and Development Institute and the MHD Component Development and Integration Facility have brought nearly 400 high paying professional positions to the Butte area. These have helped to lessen the blow of the loss of underground mining in Butte. However, the continued existence of these scientific research facilities is largely dependent on federal funding.

The Montana College of Mineral Sciences and Technology is situated in Butte and is one of six branches of the state university system. It has about 1,400 fulltime students and is one of the few fulltime mining engineering universities in the country. It has enjoyed increased enrollment over the past few years. Unlike Montana Tech, Western Montana in Beaverhead County is the smallest of the units of the university system and is continually subject to the possibility of closure due to educational funding constraints. If it were to close, it would have a substantial economic impact on the community of Dillon.

State government institutions play an important economic role in Powell and Deer Lodge counties, contributing 30 and 25 percent respectively, of the economic activity in those areas. Since 1970, the state prison and two mental institutions have added about 100-200 jobs in this LMA. However, the closure of the Milwaukee Railroad in Deer Lodge and lumber mill in Phillipsburg has meant a direct loss of 200-300 jobs since 1975.

BOZEMAN

The Bozeman LMA is north of Yellowstone National Park in Southcentral Montana and includes three counties, dominated by the city of Bozeman and Gallatin County, which contain over three-fourths of the economic activity in the area. The Bozeman LMA, since 1970, has had twice the rate of population growth (25 percent) as has the state as a whole, but has had the same rate of employment growth (34 percent). At 4.2 percent, its 1979 unemployment rate is lower than the state average; its per capita income is the second lowest in the state—9 percent below the state average; again, possibly related to the high student population.

Gallatin County is the home of Montana State University, which enrolls about 10,000 students and is the largest of the six units in the Montana University System. It has shown stable, although relatively slow growth since 1970. The university exerts a major economic influence on the area, contributing about 30 percent directly and indirectly to the area's economic activity.

There are several other factors in the area's local economy: timber and wood processing and travel and tourism. The three counties contain 22 wood processing plants, half of which are in Gallatin County. Although none are large by industry standards, they are important contributors to the local economy, principally in the smaller, rural towns. Summit/Dana Industrial (electronic equipment), Ideal Cement, and Gallatin Homes Corporation have also been important contributors to the growth of Gallatin County since 1970.

Situated at the northern entrance to Yellowstone National Park, and containing Big Sky ski resort, a major "destination" area, and Bridger Bowl, the second and third busiest ski areas in the state, the LMA has a relatively large degree of travel and tourism related employment. Recent estimates show that between 10 and 15 percent of all the jobs in Gallatin and Park counties can be attributed to the travel industry.

Agricultural production, principally ranching and irrigated and non-irrigated feed grain production, remains particularly important in Meagher County, where it is directly responsible for about one-third of the county's personal income.

HELENA

The Helena LMA comprises three counties in the west central part of the state, and is dominated by the city of Helena, in Lewis and Clark County. Helena is the state capital, and the growth since 1970 in state and federal government and associated employment has been the major impetus behind the 47 percent growth in employment in the LMA over the same period of time. The 30 percent growth in population in the LMA was the highest of any LMA in the state. Recently, the unemployment rate and per capita income here have begun to approach the state average. Also, proportionately more people are working in this LMA, as a percent of the population, than any other in the state.

State government accounts directly and indirectly for about 40 percent of all economic activity in Lewis and Clark County, and 30-35 percent of all economic activity in the LMA. The federal government is also a large employer, providing about 1,450 jobs in 1979. This economic influence is slightly less than half that of state government. Mountain Bell's state headquarters and the ASARCO lead and zinc smelter in East Helena provide directly about another 1,100 jobs. The Boulder River School and Hospital is a major employer in Jefferson County, accounting directly and indirectly for about 40 percent of its economic activity. It should be noted that there recently has been a slowdown in the rate of growth of state government employment and salary increases. Also, the institution in Jefferson Co unty has had employment cutbacks.

Agriculture still plays a major role in Broadwater County, where 27 percent of the total personal income is farm-related. The operations there and in the rest of the LMA are mostly livestock-related.

SHELBY AND HAVRE

Shelby and Havre LMA's comprise eight rural counties in north central Montana, bordered on the west by Glacier National Park. The Shelby LMA, adjacent to the park, had a net population decline of 3.6 percent since 1970, due to out-migration of the younger people because of a relative lack of job opportunities. The rate of employment increase there was two-thirds of the state average. Population grew slightly in the Havre LMA, 3 percent, while employment growth was near the statewide figure. Per capita income in this area in 1978 was about 10 percent greater than the state average, due to the fairly stable population and relatively prosperous agricultural base.

Agriculture is the major economic sector, contributing directly 15-20 percent of the area's income. It is the lifeblood of many of the small communities which dot the landscape. Agricultural operations are mainly dryland farming. Wheat is the principal crop, although increasing amounts of barley are produced. Five of the ten top producing wheat counties, and five of the six top barley producing counties, are located in these LMA's. Based upon statewide figures, about three-fourths of the area's wheat moves to the west coast, and eventually to Asian markets. About three-fourths of the state's barley output is sold to in-state feedlots.

The location of Glacier County, at the eastern entrance to Glacier National Park, is the reason why 18 percent of its total employment is travel-related. It has the highest such rate in the state, largely because there is very little other nonagricultural economic activity.

About 20 and 50 percent respectively of the state's oil and natural gas is produced in these LMA's. Until 1978 there were two oil refineries in the Shelby LMA, today only one remains open at Cut Bank. It is likely that this region's share of oil and gas production will be maintained because of the increase in oil and gas exploration in the area and the likelihood that additional economically recoverable reserves will be located along the eastern ridge of the front range and around the Tiger Ridge field.

Much of the local retail and wholesale trade not flowing out of the area to Great Falls, which is right outside the southern border of the LMA, goes to Havre, which is the largest town in the area. In addition, Havre has a concentration of rail related employment—it is the principal stop for Amtrak and Burlington Northern. Finally, Havre is the home of Northern Montana College, which employs roughly 200 people.

GLASGOW

The Glasgow LMA consists of five counties in the state's northeastern corner. This LMA has experienced a 5 percent decrease in population over the last 10 years, again due to out-migration of young people and a relative lack of job opportunities. Its rate of employment growth is approximately 80 percent of the statewide average. The LMA unemployment rate is, at 3.9 percent, 20 percent below the state average, consistent with other predominantly agricultural counties.

The LMA's economic base is almost totally agricultural. Two of the counties ranked first and second in durum wheat production and four of the counties were in the top four in spring wheat production. In addition, three of the counties ranked in the top four in oat production. Livestock operations play a lesser role, although they are prominent in the two western counties. Valley County experienced the greatest absolute population decrease in the LMA, and the slowest rate of employment growth. Contributing factors were the loss of 200 federal civilian and military positions and roughly 300 manufacturing jobs. Roosevelt County has had the largest employment gain, with an increase of about 50 jobs in oil and gas production and approximately 200 in manufacturing.

GLENDIVE AND MILES CITY

The Glendive and Miles City LMA's are located in southeastern Montana and comprise twelve highly rural and agriculturally-based counties. Employment has grown about 26 percent since 1970, three-fourths of the statewide average, while population has grown about 12 percent. The unemployment rate is similar to that found in the other agricultural areas, about one-third less than the rate for the state as a whole. Per capita incomes are slightly lower than the state average. Almost one-fourth of Montana's total of cattle and calves is found in these two LMA's. With the exception of the fertile valleys along the Yellowstone and other major tributaries, the land is principally used for livestock production. Also, about one-half of the state's sheep and lamb population is found here.

The area's importance in terms of coal, oil and gas production is indicated by the fact that Richland County, the home of Sidney, and Rosebud County, the home of Colstrip and Forsyth, are the LMA's leaders in terms of employment growth. Since 1970 there has been an increase of about 400 and 550 jobs in coal mining and oil and gas production respectively. These figures indicate only the direct impacts of these growth sectors and do not include the indirect benefits in the construction trade and transportation areas. Miles City in Custer County, Forsyth in Rosebud County, and Sidney in Richland County have benefitted by being the principal trade centers in this energy development area. Proposed new mines and coal conversion facilities announced by Tenneco and Montana-Dakota Utilities, and the current rate of natural gas and oil exploration in the Williston Basin area, indicate that the next decade probably will see continued energy mineral development. The new NERCO mine, and Western Energy and Montana Power Company's expansion (Colstrip 3 and 4) will also add new jobs to this region.

It should be pointed out that the area's growth has not been evenly distributed. Garfield, McCone, Treasure, Carter and Powder River counties, those farthest removed from the Yellowstone River transportation corridor, have experienced absolute employment and population declines since 1970.

HARDIN/RED LODGE

The Hardin/Red Lodge LMA consists of four rural counties in the south and west of Yellowstone County. Although the rate of growth here was similar to that of the state as a whole, one county, Big Horn, accounted for two-thirds of the area's employment growth. This was due principally to the growth of coal mining. The area's unemployment rate is about four-fifths of the state average and, in 1978 this LMA had the lowest per capita income of any LMA in the state, 14 percent below the state average. This is due largely to the low per capita incomes in Stillwater and Carbon counties, which had relatively larger than average ratios of population to employment gains. These counties, apparently, are becoming home to people who are working in Yellowstone County, but who elect to live in the rural, less congested outlying counties.

Since 1970, Big Horn County experienced an increase of 800-900 jobs in coal mining. In 1978, coal mining directly accounted for 37 percent of the county's income. The total economic impact of coal mining would be larger than that. The LMA otherwise is highly agricultural, with mostly livestock and feed grain operations. Two of the top five sheep producing counties in the state are in the LMA, as well as one of the top four cattle and calf producing counties. Alfalfa hay is a major feed crop produced here.

LEWISTOWN

The Lewistown LMA comprises six agricultural counties in the central part of the state. Its rates of employment and population growth since 1970 have been one-half and one-third of the respective rates for the state as a whole. Since 1970, employment levels actually declined in four of the counties; only Musselshell and Fergus had gains. The LMA consistently has an unemployment rate below the state average; a common occurance for a rural area.

The area is dominated by Fergus County, which contains over one-half the total LMA employment and which contributed 75 percent of the net employment gain. This trend is due to the highly stable economies of the other five agricultural counties and the fact that Lewistown, the county seat of Fergus County, is the area's largest town and trade center. Between 1970 and 1978 this county had an increase of roughly 450 jobs in the trade and service sectors. A major economic disruption has recently occurred in Harlowton in Wheatland County, where the closure of the Milwaukee Railroad will mean the loss of roughly 160 high paying jobs.

Agriculture in the area is mixed, consisting of both food and feed grain production, and cattle and calf operations. Agriculture is the lifeblood of the entire LMA, contributing directly about 35 percent of the area's personal income. Were it not for agriculture, most of the area's small communities would cease to exist.

8 MONTANA'S BASIC INDUSTRIES

This chapter examines Montana's most important basic economic sectors, their historical levels of activity and their respective roles in the state's economy.

8.0 AGRICULTURE

Montana's agriculture has undergone substantial change. It now is characterized by larger and fewer farms, a smaller work force, greater capital inputs, and growing commercialization. The continuing migration of farm labor has affected not only rural areas but urban centers as well. And, to this day, many agricultural areas within Montana are still experiencing out-migration.

This rapid change, largely a product of technology, has had good and bad effects. Clearly, the ability to produce more and more each year has been good for a hungry world, but bad for individual farmers and ranchers as a result of unacceptable prices—mirrored by a host of federal subsidies in the 1950's, 1960's and early 1970's. Agriculture, more so than any other industry, is subject to boom and bust cycles through climatic whim and changes in demand on a world-wide basis, changes which affect not only the agricultural communities but also the overall economy of Montana.

For many years, farming and ranching have employed more Montana people and provided them more income than any other basic industry. Since 1920, the high point, agricultural employment has fallen from 38 percent of the employed labor force to slightly over 9 percent today. But agriculture still remains the dominant economic force of Montana and, in all likelihood, will continue to be the principal industry in the future.

Output and Employment. Since 1960, overall employment in agriculture has declined by approximately 18 percent. Despite this trend, production of cattle and grain has significantly increased as shown in Table 23. Production in 1979 dropped drastically due to the drought, centered largely in eastern Montana. Unfortunately, 1980 was probably not much better.

Output trends in agriculture are somewhat difficult to interpret as a result of climatic and market variations. For example, cattle and calf production is very sensitive to prices. Although the state's herds are now building as a result of good prices, production is still less than that in the early 1970's. Also, a substantial amount of the increase in grain production (1975-76) was the result of unusually high moisture. Another reason for the long-term increase in grain output is that the amount of land under cultivation has risen approximately 10 percent within the last decade. Further, improved procedures and management have resulted in higher yields. Montana farmers and ranchers are working larger acreages—up 29 percent since 1960—with a corresponding decline in the number of farms, primarily as a result of improved technology.

Income. Agricultural income data are notoriously bad. Between 1973 and 1977, dramatic declines resulted from falling prices, but these declines are difficult to measure accurately. The dramatic drop (see Table 24) in farm income in 1976-77, however, must be recognized as one of the most serious collapses Montana agriculture has ever experienced. Farm income increased substantially in 1978 but declined in 1979 as a result of the drought. Income is expected to be down slightly in 1980, again due to the drought. It also should be pointed out that many farmers and ranchers have second jobs; about 50 percent of the income of farmers now is from nonfarm sources. That additional income is not shown in Table 24.

Growth Considerations.

—Transportation is basic to all economic development and is of primary importance to agriculture. All sectors of the economy need reasonable rates, good services, and efficient and integrated transportation systems. Rising energy costs and rail abandonment will strain agriculture's potential for growth.

—In addition to potential transportation problems, the overall energy input to the food system has grown nearly eight times as fast as the food energy produced. Rapid increases in fertilizer and fuel prices can be anticipated. This also could slow output increases.

TABLE 23
Montana Agricultural Output

	CATTLE AND CALVES		ALL WHEAT		BARLEY	
	Production (1000 lbs.)	Number[1] (1000 head)	Production (1000 bu.)	Harvested (1000 acres)	Production (1000 bu.)	Harvested (1000 acres)
1960	789,875	2245	79,397	4088	40,444	1721
1961	742,180	2155	54,048	4262	26,370	1465
1962	737,845	2133	79,332	4248	54,961	1802
1963	828,865	2325	92,294	4246	44,663	1514
1964	927,420	2672	93,752	4156	49,692	1529
1965	948,420	2758	105,350	4551	50,050	1300
1966	985,385	2841	99,694	3885	63,564	1651
1967	973,940	2869	119,136	4825	37,022	1255
1968	1,062,930	2984	125,869	4722	42,735	1155
1969	1,066,560	2984	99,754	3920	67,914	1617
1970	1,089,015	3014	85,167	3506	65,132	1714
1971	1,122,103	3165	112,011	4516	58,800	1680
1972	1,103,350	3165	98,831	4130	64,013	1707
1973	1,053,550	3197	93,714	4235	60,000	2000
1974	1,035,930	3380	120,108	5020	37,120	1280
1975	963,050	3340	155,925	5130	50,700	1300
1976	967,940	3150	167,295	5415	52,065	1120
1977	840,080	2980	130,920	5060	55,480	1520
1978	941,570	2680	146,050	4840	56,375	1375
1979	882,185	2645	116,475	5125	40,560	1040
1980	n/a	n/a	117,210E	5130E	45,360E	1080E

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[1] Inventory beginning of year.

SOURCES: Montana Agricultural Statistics, Montana Department of Agriculture
U.S.D.A. Economics, Statistics, and Cooperative Services; Crop Reporting Board

TABLE 24
Agricultural Receipts and Income

	CASH RECEIPTS ($millions)	FARM INCOME ($millions)
1970	$689	$219
1971	695	176
1972	927	308
1973	1,192	530
1974	1,169	331
1975	1,018	316
1976	1,256	139
1977	1,161	1*
1978	1,732	262
1979	1,334	131
Ten Year Average	$1117	$241

*The decline in 1977 was for the most part the result of what is called an inventory adjustment, i.e., farmers and ranchers selling off production from previous years to cover operating losses. That is why income fell dramatically and receipts remained relatively constant.

SOURCES: Bureau of Economic Analysis
Montana Department of Agriculture

—Although the number of irrigated farms has increased seven percent over the last decade, the proportion of output from irrigated land to the total crop has remained unchanged. Furthermore, within the last few years, the irrigated acreage has declined somewhat, possibly a reaction to lower grain prices. This slow growth is not encouraging. In addition, only small improvements in irrigation efficiency associated with current practices are expected to occur in the future. Widespread application of new technology to achieve significantly increased irrigation efficiency will be stifled without changes in water rights distribution or major public program incentives.

—In all probability, the single most important factor influencing future agricultural output will be the overall level of world demand, including the ability to pay. Rising populations, particularly in developing countries, may more than double export demand within the next decade. Further, long-term declines in food reserves and the more current downturn in worldwide grain output per hectare will continue to place a greater emphasis on the nation's ability to produce.

—There exists a significant potential to boost yields, as shown in the following table. However, the question is not so much does the technology exist but, rather, is it economically viable?

TABLE 25

Average and Record Yields (National)

	Average	Record
Corn (bushel per acre)	72	307
Wheat (bushel per acre)	28	216
Soybeans (bushel per acre)	24	110
Sorghum (bushel per acre)	45	320
Oats (bushel per acre)	48	296
Barley (bushel per acre)	38	212
Potatoes (bushel per acre)	420	1400
Sugar beets (ton per acre)	19	54
Milk production per cow (10^3 lbs.)	10	50
Eggs per hen	230	365

SOURCE: American Association for the Advancement of Science

—Scientific groups concerned with priorities in food and agricultural research are agreed that the returns from a long-term program of expanded basic research are likely to be great. Additional public investments in a wide variety of projects are needed.

—Another potential technical change which may affect Montana is the increasing feasibility of ethanol from grain. Opinions surrounding the viability of synthetic fuel from grain (or other inputs) are extremely divergent. However, a major increase in the real price of gasoline may quickly move this process into the realm of practicality.

Long-Term Outlook. The most recent output projections for Montana agricultural products (Montana State University) indicate potential gains of 33 percent (from 1977) in cattle and calf production by 1990. Increases in wheat and barley are expected to be thirteen and two percent respectively. However, these projections for Montana agriculture can be realized only if Montana retains its competitive strength relative to agriculture in other regions of the United States.

8.1 WOOD PRODUCTS

After World War II, the tremendous increase in construction activity insured a continued demand for Montana wood products. This postwar increase also was related to declining timber supplies in other parts of the nation. Producers began to view Montana's resources, which to this point had not been fully utilized, with more interest. Increasing prices and improved technology in terms of harvesting steep slopes gave rise to numerous small mills during this period. However, this postwar boom was relatively short-lived. Between rising interest rates, mortgage constraints, and the falling demand for mine timbers the industry experienced a sharp reduction in output and employment. But within a few years, the industry regained stability and became more diversified through pulp, paper, particleboard and other products.

As prices for lumber products continued to rise, a strong market developed for residuals from the existing industry. These technical innovations not only expanded employment but also improved the efficiency of the entire system. Many of these new products were produced using by-products of other firms which were previously burned or disposed of by other means. Other advantages included less seasonal fluctuation in employment and another income source (sale of chips to the mills).

Increasing national demand for plywood because of a shortage of logs for plywood in other areas also helped Montana's industry to grow. Mills were inceasingly modernized and new products were added, such as laminating, paneling, finger-jointing, pressed logs, and studs, which can be made from smaller trees. Many of these new technologies and products were the result of or in reaction to rising prices, increasing shortages, and growing demand—of course, all related. A profile of Montana sawmills is provided in Table 26.

TABLE 26

1978 PROFILE OF MONTANA SAWMILLS

Source of Timber	
Company Owned	12.0%
Federal	59.4%
Other	28.6%
Species Cut	
Douglas Fir & Larch	41.4%
Ponderosa Pine	17.1%
Engelmann Spruce	10.2%
Lodgepole Pine	14.0%
Idaho White Pine	2.6%
White Fir	6.6%
Western Red Cedar	1.1%
Other	7.0%
Degree of Processing	
Kiln dried	76.7%
Air dried	15.6%
Green	7.7%
Rough	1.9%
Surfaced	98.1%
Mode of Transportation	
By rail	48.1%
By truck	51.9%

Principal Markets	
California	3.3%
Other West	29.2%
Midwest	44.9%
Northeast	6.0%
South Central	7.4%
Southeast	8.9%
Export	0.3%

Distribution Channels	
Direct to user	4.3%
Direct to retailer	5.0%
Wholesaler	78.4%
Company owned distribution yards	9.5%
To factory for further manufacturing	2.8%

SOURCE: Western Wood Products Association

Output and Employment. Table 27 presents employment and production data since 1960. Industry employment climbed to nearly 11,000 persons in 1979, a banner year. However, as interest rates climbed during the later half of 1979 and in early 1980, the demand for new housing fell sharply and employment correspondingly declined. As a result, the 1980 level probably will have been down about 2000 jobs when compared to 1979. Fortunately, the losses are for the most part temporary, with the exception of the Van Evans plant in Missoula which employed about 200 workers. Other "housing cycles" are revealed in the data, e.g., the last cycle peaked in 1973 and bottomed-out in 1975. Fortunately, Montana's market is largely in the west-midwest which generally is not as affected by recessions or the more industrialized sections of the country. The data in Table 27 suggest other conclusions as well. First, because of increases in the efficiency in utilizing wood residue previously discarded, employment has continued to grow while the actual harvest has declined slightly. There also has been a slight decline in production efficiency, when crudely measured as board feet cut per logger. Within the last fifteen years, this measure of output per worker has fallen by approximately 20 percent. This decline may reflect several related events. Specifically, there are fewer large trees, new areas of development are increasingly more costly to harvest (slope, accessibility, etc.), the mix of harvest between private and public lands has changed and so has Forest Service policy—which has grown increasingly more restrictive. A related issue, perhaps, is that timber prices have been rising at nearly 20 percent per year for the past five years.

Second, although not shown in the table, there has been a marked shift in the composition of the harvest—the federal contribution (mostly Forest Service) declining and private forests picking up the difference. In 1970 and 1971, public timber amounted to approximately two-thirds of the harvest, the rest coming from private lands. However, within a few years the pattern of public and private harvest significantly changed, placing relatively less emphasis on public lands and more on private. The allowable cut on public land has been much higher than the actual cut since the early 1970's. This may have resulted from federal wilderness review or possibly other actions on the part of the Forest Service, which resulted in a more conservative cut. Or, it may simply have been a matter of arithmetic—the way in which the allowable cut was calculated. Regardless of the cause, the effect was to shift the burden of harvest to private lands. Private (company) lands are generally well managed but small private individual holdings often are not.

TABLE 27
Montana Lumber Employment and Output

	EMPLOYMENT	OUTPUT* (Millions of Board Ft)
1960	7300	1035
1961	7400	1152
1962	8000	1259
1963	8500	1166
1964	8400	1271
1965	8600	1311
1966	8900	1375
1967	8700	.1347
1968	8900	1499
1969	8900	1397
1970	8200	1281
1971	8700	1397
1972	9200	1311
1973	9800	1445
1974	9500	1165
1975	8100	1038
1976	9100	1197
1977	9300	1250
1978	10700	1256
1979	10900	1257

*NOTE: The production figure is measured in millions of board feet of cut timber and does not include processed materials.

SOURCE: Western Wood Products Association
Montana Department of Labor and Industry

Growth Considerations.
—This industry also is accustomed to market uncertainty. Changes in national demand and the resulting boom and bust cycles have been and will remain a fact of life. However, the long-term future of the industry is much more related to changes in the management policy than to national demand. The U.S. Congress and Forest Service, currently in the limelight, will be making decisions which will significantly affect timber practices. The Roadless Area Review and Evaluation Process (RARE II) and the 1976 National Forest Management Act (which could result in a harvest reduction) represent two major decision points. However, it should be stressed that these two "issues" are only part of a

continuing process. That is, all planning processes are subject to change when warranted.

—RARE II and the Montana Wilderness Bill (SB-393) represent one of the most hotly debated topics in Montana in recent years. It is an emotionally charged issue with comments from both factions (pro-development, environmental) often making equal sense but being totally divergent. In addition to the problems associated with polar viewpoints, the problem is magnified by uncertainty due to poor information. The industry is arguing that excessive or poorly selected wilderness areas will result in future job losses. They are right, but the question is—how many jobs will be lost? Environmental concern for noncommodity values is, however, important. But the argument goes much deeper than simple wilderness and nonwilderness distinctions, to the pressing need for good management of both public and private forest lands in the future. The RARE II process, apparently the result of a frustrated Congress and growing sentiment over the inability of the Forest Service to manage, merely helped to make the issue more visible.

—Aside from these more negative prospects and certain elements of short-term business uncertainty, the demand for housing should remain strong for the next decade. Specifically, demographic patterns—the large number of new young adults in the 1950's—should help maintain a high level of new household formations. But, it is likely that most of the employment increase will continue to be found in processed materials as opposed to actual logging or the milling of dimension lumber. Also, the use of forest residuals may become feasible within the next ten years, adding to employment.

—There is little dispute by industry experts that productivity on federal lands could be increased greatly through intensive forestry management—artificial planting, control of competing vegetation, fertilization, thinning, and the breeding of new genetic strains. The Forest Service admits that the land under its management produces 50 percent less wood fiber per acre than industry-owned lands and, with respect to best practice industry land, much less. However, environmental tradeoffs do exist. Furthermore, rapid timber growth in the southern states may result in Montana losing its share of the national market.

Long-Term Outlook. In view of these qualifications, most projections for the industry show few changes in the level of the timber harvest, which is expected to remain constant. Nevertheless, it is doubtful that the present rate of harvest on private lands can be maintained indefinitely; current rates of logging are well above historical averages. This means that in future years, there will be a greater reliance on public lands for timber supply than at present.

8.2 PRIMARY METALS

The closing of the Anaconda Company's smelter and refinery on September 29, 1980 represents one of the most significant job losses in Montana's history. Other recent permanent closing which rival the current impact include the 1974-75 underground mine shutdown in Butte (1500 jobs), the mine shut-down in the mid 1950's, again in Butte, and the Glasgow airbase (1350 jobs) in 1967. In terms of the severity of impact, the Anaconda experience, although devastating, nevertheless should be viewed within some sense of historical perspective. For example, we should not forget that over 1200 jobs were lost at the smelter between 1950 and 1970. At Great Falls, 800 refinery jobs were lost between 1970 and 1974 and over 4000 mining jobs were lost at Butte since 1950. The essential difference is that the Anaconda smelter closing was immediate and represented the only industry in the area. Also, the previous declines were the result of modernization of plant facilities as opposed to elimination. The action will probably result in the migration of several thousand people from the area in the next few years.

Clearly, major impacts will be experienced in Butte and Great Falls, but not to the extent in Anaconda where the smelter represents, for all practical purposes, the city's economic lifeblood. There are very few national precedents for events of this severity.

The announcement by Anaconda Copper President, James Marvin, has left about 1500 highly paid employees out of work; 1000 at Anaconda (about 800 live in Anaconda) and 500 in Great Falls. Marvin indicates that the mining and milling operations in Butte would not be affected. He went on to say that the decision to close the smelter and refinery was a matter of economics; i.e., low productivity, i.e., old plant equipment, and the high cost of retrofitting the old facility to meet new air quality standards, both state and federal. Because of the industrial linkages with the Great Falls electrolytic refinery, that facility also was closed even though there were no air quality problems.

Marvin noted that, since 1972, the company has operated the Anaconda smelter under variances from Montana environmental regulations and said it has spent $65 million toward meeting the state and federal standards. An additional $15 million has been spent in the past two years on research and engineering in a search for technology that would reduce plant emissions to legally acceptable levels, he said.

Marvin said the cost of achieving compliance would be prohibitive. He added: "As a responsible company, we do not want, nor do we intend, to continue making application for variances from the environmental regulations of this state or nation."

He said the company was willing to seek the variances "while we sought possible technological solutions to these problems (but) the agonizing facts are we saw no viable option at this time other than to suspend operations at these two locations."

The Environmental Protection Agency, however, maintains that there was no immediate motive for the shutdown since the federal clean air deadlines could be extended under existing laws until 1982. While the exact reasons for the closing may never surface, they were likely more related to plant efficiency and a very competitive international market than to the costs of pollution control. An economic post mortum and an analysis of the impact of the state air quality standards will not result in any new employment opportunities for Deer Lodge, Silver Bow, or Cascade County. The Experience will serve to focus the debate on the importance of economic considerations in environmental policy settings.

The remaining Anaconda facility is the aluminum plant located at Columbia Falls. This operation, located near the Hungry Horse Reservoir, was developed largely because of inexpensive power. However, with the proposed changes in the BPA's rate structure, the rates and contracted power for the plant pose new uncertainties. Because the firm's input costs are geared toward cheap and readily available electricity, a doubling or tripling of rates may result in a tight profit squeeze. In order to reduce potential impacts, the company is incorporating more energy-efficient processes. This facility also may have difficulty in meeting state air quality standards but, is not affected by the plant closings in Anaconda and Great Falls.

8.3 MINING

The Montana State Seal appropriately presents the words "oro y plata" (gold and silver), as well as the tools of a miner. To this day, mining, Montana's first industrial sector, still remains prominent. Until 1950, metal mining employment was significantly larger than any other mining activity. But since the mid-1950's, substantial losses have occurred in this sector, amounting to over 6,000 jobs. These were jobs that paid wages well above the Montana average, resulting in a serious loss for the state, particularly in the Anaconda and Butte areas. Metal mining activity (employment and production) always has been very sensitive to national and world markets. Rising foreign competition and outmoded technology have resulted in extreme uncertainty. However, prospects for improvement seem to be favorable. Production data for Montana's most significant mining activities are shown in Table 28.

TABLE 28

Mineral Production

Year	Copper (short tons)	Coal (million tons)	Natural Gas (million cubic ft.)	Crude Oil (million barrels)
1960	91,972	n/a	n/a	n/a
1961	104,000	n/a	33,701	30,906
1962	94,021	n/a	29,955	31,648
1963	79,762	n/a	30,026	30,870
1964	103,806	n/a	25,188	30,647
1965	115,489	n/a	28,105	32,778
1966	128,061	n/a	30,685	35,380
1967	65,483	n/a	25,866	34,959
1968	69,480	n/a	19,313	48,460
1969	103,314	n/a	41,229	43,954
1970	120,412	n/a	42,705	37,879
1971	88,581	7.1	32,720	34,599
1972	123,110	8.0	33,474	33,904
1973	132,446	10.4	56,175	34,620
1974	131,131	13.6	54,873	34,554
1975	87,959	22.1	40,734	32,844
1976	91,111	26.2	42,563	32,814
1977	86,203	27.4	48,663	32,680
1978	67,326	26.6	47,140	30,467
1979	70,660	32.5	53,888	29,957

SOURCE: United States Department of the Interior, Bureau of Mines

Oil and gas employment was relatively stable until the last few years. Since 1977, exploration and leasing activity has taken a sizable jump, particularly in the Shelby, Glendive, Sidney, and the intermountin areas. The potential for development of the "overthrust belt" along the Rockies may be significant, given sizable finds in Utah and Canada. The recent oil price hikes also may stimulate interest in this region, once federal leasing policy is stabilized and wilderness reviews resolved.

Other forms of nonmetallic mining activity generally have been stable. Coal production has not followed this pattern and has increased from virtually nothing in 1970 to an important and expanding sector of Montana's economy. One only needs to look at employment and population patterns in southeastern Montana to determine the significance of this change.

Copper. Copper is far and away the most important non-fuel mineral produced in Montana, and its occurrence with other metals (gold and silver) contributes to its significance. Almost all Montana's copper now is produced within the Butte area, but a new facility of smaller scale (ASARCO) is scheduled to begin production in the early 1980's. This particular mine, near Troy, will employ under ground techniques whereas mining the Butte district is entirely open pit. Currently, the Troy project is being delayed by a lawsuit.

Although present mining operations are extremely concentrated, other important reserves exist outside of the Butte district. The Montana Bureau of Mines and Geology has identified other important areas in Lincoln County and within the Stillwater Complex, an area rich in other minerals as well.

Depressed prices and intense international competition were responsible for the closing of underground operations in Butte (1975). The domestic industry regards certain types of competition as unfair, at least to the degree that other countries (Peru, Chile and South Africa) are not operating under the same constraints. Specific debate over import policy centers on environmental costs associated with production in the U.S. and "dumping" at a price subsidized by foreign governments.

Even though output levels have been depressed (about 30 percent) since the early 1970's, most national projections indicate increasing production for the next 10-15 years. Nevertheless, the short-term outlook is not encouraging in view of surplus stocks and excess capacity.

The major concern today regards the potential impact of the loss of the smelter on the mining operations in Butte. Until recently, copper concentrate (in slurry form) was transported to Anaconda on the Butte Anaconda and Pacific railroad where it was smelted. With the smelter now closed the slurry will have to be either dried in Butte or at the smelter so that it can be more readily transported to an out-of-state smelter. The high concentration of arsenic, bismuth, and antimony, however, will present the same health and safety problems for most U.S. smelters as it did for the Anaconda smelter. The concentrate may have to be exported out of the country (probably to Japan) where there is excess capacity and different environmental and safety considerations to be met.

Another issue which may affect the Berkeley Pit is the Hillcrest dump site. A group of homeowners in Butte have sued Anaconda and the State of Montana for an improper environmental impact statement. Residents argue that the dump site will adversely affect property values in the vicinity. The company argues that they need the site for the next few years until they can begin backfilling in the pit.

If the pit were to be closed, Anaconda could consider mining in other areas. Presently they are required to divest themselves of other holdings (copper) as long as the Berkeley operation continues. This was part of the 1979 consent agreement with the Federal Trade Commission pertaining to the ARCO and Anaconda merger. If divesture does not occur, mining possibly could take place on the Heddleston property near Lincoln, Montana.

Most authorities agree that mining operations in Butte, however, should be safe for no less than twenty years. Beyond that period, mining feasibility will be largely a function of the development of new, low cost underground techniques. Underground operations could be resumed (400 new jobs) as early as 1985. It will be necessary, however, to be out of the west pit before such activity could safely occur.

Coal. Coal was to the industrial revolution what yeast is to bread—the essential starter. With it, society set about creating the tools, processes, and institutions that shape contemporary life. In a comparative sense, the United States came into the coal age late, withdrew early, and now is returning to it. Coal did not become the most popular fuel until after the Civil War, but by the turn of the century, it supported over 70 percent of national energy use. Today the share is growing, but still accounts for less than 20 percent of the total. The early decline was almost entirely the result of rapid technological change, i.e., the internal combustion engine, electrical generation and transmission lines, pipelines, and the relative convenience of other energy types for home heating.

From the early 1940's until just recently, coal was treated like the mineral equivalent of a nettle. However, shortages in oil and gas have changed this view. When the Carter Administration took office in 1977, one of its major priorities was to do something about the energy crisis. The bottom line of this plan, which emerged in April, 1977, was to reduce foreign oil consumption by approximately one-third or face dire economic and political consequences. Of more interest to Montana was the President's substitute for oil: "We should double the amount of coal we are presently consuming."

Several serious constraints to an expansion of the magnitude suggested by President Carter exist—including tremendous capital outlays, transportation difficulties, and potential alterations of environmental quality. The major impact of the plan as proposed is to reduce oil imports by shifting to coal.

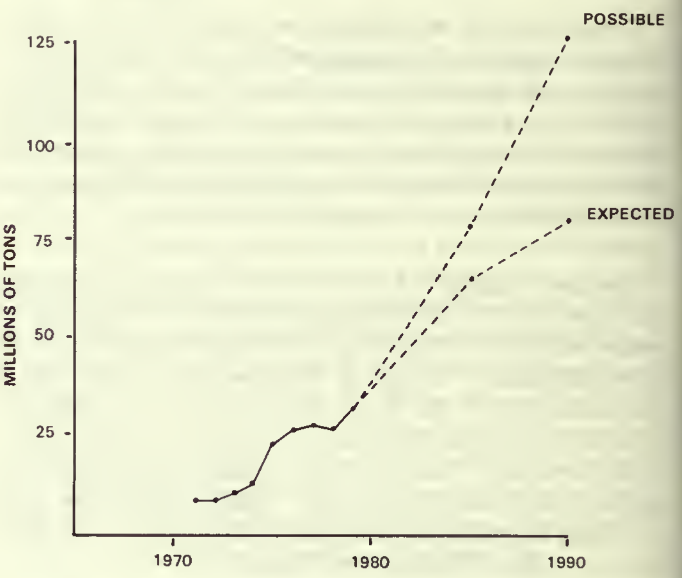
The impact of this on Montana is very difficult to assess. The demand for low-sulfur coal, of which Montana has an abundance, has been the primary determinant of growth. In all probability, this demand will become even greater. If the United States Environmental Protection Agency further tightens its emission standards, however, the demand could shift to eastern coal, slowing further development in Montana.

Coal production in Montana "may" reach 100 million tons by 1990, adding nearly 2500 new mining jobs to the economy of eastern Montana. Coal production is "expected" to reach 80 million tons (see Figure 14) based on mine permits already in progress. That estimate could be too high. More coal is being produced in the West than can be sold. As a result, many coal experts believe that 60 million tons is more reasonable. Although additional coal will be needed for consumption within Montana—at Colstrip and for another projected Montana Power Company plant—out-of-state sales may not grow as once expected. Distance to markets and transportation costs are affecting sales of Montana and Wyoming coals. And, federal air quality regulations under the 1977 amendments to the Clean Air Act have changed the position of low sulfur western coal in the Midwest markets, making it less advantageous. Slurry transportation, although economically feasible, probably will not occur as a result of water related conflicts.

The export of coal to the Pacific Rim could add to the demand for Montana coal, but probably by no more than 10 million tons per year. Further, Montana coal production is not as likely to be affected by international demand as that of many other areas in the nation which have higher BTU coals and better transportation access.

The crush began last summer when turmoil in Iran forced the oil-importing nations to look favorably at U.S. coal, which at about $50 a ton is one-third cheaper to import than oil with equal energy content. The withdrawal last year of Poland, a major coal producer, from the European market in favor of expanded sales to the energy-squeezed Eastern bloc increased the pressure on these countries. As oil prices continued to skyrocket, the cost of shipping coal to Europe from Australia, a traditional exporter, increased sharply due to the higher fuel costs for oceangoing vessels.

FIGURE 14
PROJECTED COAL OUTPUT



SOURCE: Department of State Lands

Although the U.S. has long been an exporter of metallurgical coal, the International Energy Agency, a Paris-based, 21-nation group, says the U.S. will have to export 100 million tons of steam coal by 1990 and 300 million tons by 2000 to meet free-world energy needs. A recent study sponsored by the Massachusetts Institute of Technology concluded that the still modest international steam coal trade will have to grow 10 to 15 times by the year 2000. Some authorities think that these estimates are too optimistic. Still the consensus of most coal executives, energy economists, U.S. government officials and foreign coal users is that U.S. coal exports will increase sharply.

Increased exports, however, are contingent upon development of U.S. port capacity. That development is very much in doubt. U.S. interests are unwilling to invest the billions of dollars it would take to increase exporting capacity significantly until foreign coal users sign long-term contracts with U.S. coal producers.

At the same time, foreign utilities, which are buying U.S. steam coal almost exclusively on a spot-purchase basis, refuse to sign long-term contracts until commitments are made to expand U.S. port capacity. Their reluctance comes from a general mistrust of the U.S. as a commodity supplier.

Natural gas. Declining domestic reserves, curtailment of Canadian gas imports, and rapidly rising prices have resulted in stepped up gas exploration in Montana. The major state suppliers of gas include the Montana Power Company (65 percent of sales), Montana-Dakota Utilities (25 percent), and nine small utilities comprising the remainder of sales. Although in-state production of gas has increased approximately 30 percent since 1960, net imports still represent about 35 percent of total consumption. The level of imports, however, has sharply declined within the last few years. In 1973, for example, 87 pecent of Montana Power's sales were made from imported gas. Since Canada announced that export licenses would not be renewed, MPC substantially increased expenditures for instate exploration. As a result, Montana production sold to MPC approximately doubled and statewide imports for all utilities were reduced by more than 80 percent.

Canadian export reductions have been more than offset by increased Montana production and reduced consumption—related to very rapidly increasing prices, and a decline in industrial use. Further, a recent study suggests that Montana appears to be assured of a good gas supply through the end of the century.

Petroleum. Montana's petroleum is in short supply—most fields are relatively old and declining. Unless new areas are successfully explored and new technologies are adopted, it is likely that output will gradually decline.

Montana's crude production has been relatively stable for the last few years—averaging about 32,000,000 barrels annually. However, at the current extraction rate, assuming no discoveries, known reserves could be depleted within 8 years. Although current reserve estimates vary widely, data supplied by the American Petroleum Institute indicate that total proven reserves have declined by nearly 50 percent within the last ten years.

The most important potential impact on the petroleum sector in Montana centers on the refining industry concentrated in Yellowstone County. These firms—Cenex, Exxon, and Conoco—have a major impact on the Billings economy, employing approximately 1100 workers, mostly high paid jobs. Since the late 1960's, these refineries have depended on imported Canadian crude which will not be supplied after 1982. As recently as 1976, nearly one-half of all oil refined in Montana was from Canada.

Another factor which complicates the problem is that the technology of the refineries is geared toward low sulfur, "sweet" Canadian feed stock and is not easily adaptable to crude from Wyoming. Wyoming crude also would result in increased residuals, such as asphalt, which are difficult to market because of their bulk and relatively low value. A temporary solution may be to exchange crude sent to eastern Canadian refineries for imports. In the long-term, one solution is to replace the Canadian feedstock with imported crude via the proposed Northern Tier Pipeline.

Growth Considerations. Like the wood industry, much of the debate in the mining sector focuses on environmental trade-offs and economic growth.

—Ten years ago, energy was cheap, minerals seemed abundant, and the American life style was more extravagant than ever. With only six percent of the world's population, the U.S. was using a third of its energy. We were burning fossil fuels and extracting minerals as if the supply were infinite. Ironically, this pattern has not changed even after the 1973 Arab embargo. Industry has effected some very significant energy savings, but gaosline, oil and heating fuel consumption has continued to edge up, despite such savings.

—While the so-called "soft" alternatives are looking better and better, nuclear and coal have run into some big problems. Nuclear once touted as the wave of the future, has become ensnarled in safety and economic questions. Coal can cause serious air pollution problems and there are reservations about coal's long-term effects on climate and water quality.

—Alternatives are being developed for other minerals as well as for fossil fuels. At the University of Pennsylvania, researchers are working on a "supermetal" derived from ordinary carbon that could reduce the demand for copper as an electrical conductor. Although the new science of molecular engineering may turn up some valuable substitutes, the most promising idea for conserving raw materials is an old one—recycling.

About two-thirds of all the things we use could be recycled. Americans throw away 70 percent of all metal after it is used just once. Only a fraction as much energy is required to recycle metal as to mine and refine raw ore.

—Most of the developments in the energy industry show growth horizons being pushed back, more as a function of the economics of energy than of technology. As long as natural gas and oil are held below world and free market prices, government's desire to subsidize the consumer will thwart commercialization of existing technology—coal gasification, solar, etc.

—Conservation of natural gas as prices continue to rise will help to prevent future shortages. National gas deregulation also should help to motivate exploration and dampen demand. However, federal wilderness policies and leasing problems may present a significant barrier to development, particularly along the Rocky Mountain Front.

—The primary factors which will influence crude petroleum extraction include conservation, federal crude oil pricing, federal and state leasing, environmental policies, and taxes. Although the prospects of significantly increasing the levels of oil and gas production are not high, the outlook for increased employment is favorable. Drillers in the Montana portion of the Williston Basin are having extraordinary success in deeper exploratory and development drilling. The experimental tertiary recovery of crude oil in the Belle Creek Field in Powder River County also has been highly successful. Employment of a process called mycelarpolymer flooding, resulted in the production of over nine million barrels of crude oil in the Belle Creek Field in 1977—the highest production of any Montana field. New resource discoveries and improved technology may maintain current production levels of oil and gas for a few more years.

—The recent economic loss in Anaconda has vividly illustrated the "boom and bust" cycle that many of Montana"s resource based industries have experienced. The Montana coal tax, although high in comparison to other coal severance taxes, is not different (in fact, often, is lower) than numerous other types of taxes levied on energy (gasoline and natural gas) products across the nation. Residential customers of Detroit Edison, (one of the major buyers of Montana coal) pay $1.23 per year extra as a result of the severance tax. Although they are not an energy tax, foreign trade taxes cost Montanans who happen to purchase a foreign automobile "substantially" more to protect Detroit from competition. The list of such taxes is nearly endless.

Montanans should remain vigilant and defend their rights to ensure that something is left when the coal mines are gone. Many states and provinces are beginning to realize the importance of "resource trusts" to mitigate adverse impacts of development and to allow for a plan of diversification prior to the "bust." Montana was the first.

Long-Term Outlook. The years 1978 and 1979 were not good years for copper production, but in view of the Troy mine proposal and national forecasts for copper demand, it is likely that some growth will occur in the 1980's. However, remaining employment in primary metals manufacturing probably will remain constant. On the basis of existing mine development plans, coal employment and output levels are expected to more than double within the next decade. Oil and gas exploration is also expected to experience significant gains as the United States attempts to become more energy independent.

8.4 RAILROADS

The railroads brought people and economic activity to the state and provided outlets for mineral and farm products. New towns were established at railheads and/or service points—Glasgow, Havre, and Kalispell on the Great Northern; Glendive, Laurel, and Livingston on the Northern Pacific; Harlowton and Deer Lodge on the Milwaukee; and Dillon on the Union Pacific. Rail employment still is important to several of these cities—particularly Havre, Livingston, and Laurel.

There were 20,000 railroad employees in Montana in 1909, following the construction of the Milwaukee Road, compared to the present level of about 7,000. The depression resulted in a loss of nearly 10,000 rail workers, but World War II created an unusual demand for rail employment, increasing the total level to nearly the number employed prior to the depression. However, after the war, rail employment dropped sharply. Passenger travel declined, trucks and planes captured a larger share of the freight business, and companies rapidly shifted from steam to diesel engines. Switchyards were automated and several mergers also took place. Employment continued to fall as productivity per man increased. The relative shift in emphasis between rail and motor carriers is shown in Table 29.

TABLE 29

Transportation Employment

	RAIL	OTHER*
1960	9,000	4,000
1965	7,500	4,000
1970	6,600	4,600
1975	6,100	5,600
1976	6,100	5,700
1977	6,300	6,100
1978	6,900	6,600
1979	7,400	6,800
1980	7,100E	6,800E

*NOTE: Includes motor carriers and air transportation.

SOURCE: Montana Department of Labor and Industry

The postwar decline in employment was not unique to Montana. Decline at the national level followed a similar pattern, but railroads in Montana employed (and still employ) a larger proportion of the labor force, making the loss more significant here. Also, rail jobs pay considerably more than the average for other sectors in the state's economy.

The past year and one-half has witnessed two significant changes in rail activity; the loss of the Milwaukee (800 jobs) and the southern Amtrak route. Before closure, the Milwaukee carried about 4 percent of the total tonnage for Montana. Agriculture was more affected since slightly over half of the Milwaukee's haulage was farm products; 15 million bushels versus the BN's 80 million bushels. In addition to losing the carrier and having to truck long distances at a higher cost, Harlowton and Deer Lodge lost a substantial number of jobs in repair and maintenance. No employment data are available on the Amtrak System.

Interestingly, ridership on the southern Amtrak route was up 60 percent the last year of operation. The northern route was up about 7 percent but it carried three times as many passengers. This year the northern route is up approximately 45 percent; a sign of either a shift to the northern route (since the southern route is closed) or perhaps more people riding trains. Although there are no good data on the topic, a brief analysis of ridership on the southern Montana route suggests that about 40 percent were Montanans. Montana ridership on the northern route appears to be less; probably the result of more vacationers, particularly in the Kalispell/Whitefish area.

Growth Considerations.
—Deregulation of the rail industry, just like truck and airline deregulation poses some problems for small states like Montana. Although few would argue that a free market is a "bad" idea (everything else being equal) there are few carriers (actually only one rail carrier) that can afford to provide the kind of service available in more urbanized areas. There are fewer alternatives open to Montana than to the more populated areas and greater distances to travel and transport goods.

—Recent changes in the patterns of U.S. economic activity have been almost uniformly unfavorable to conventional rail service. The sluggish growth in consumption of bulk commodities, particularly those that typically move by rail; the trend toward more highly fabricated manufactures and toward freight of a higher value per unit weight; the trend toward product differentiation and competition among products on the basis of quality and service rather than price; and the urbanization of the population and growing self-sufficiency in the manufacturing capacity of metropolitan areas have hindered rail development. Further, the segments of the freight market in which railroads hold a commanding economic advantage have diminished as the truck, the pipeline, and the airplane have been developed to satisfy specialized transport needs.

—Neither the railroad industry nor public policymakers can do much to slow the railroads' loss of traffic when other modes possess a genuine comparative advantage. There are, however, indications that the railroads' loss of market share on this account may be coming to an end. The trucking industry has already diverted most of the high-value freight, where the emphasis is on quality of service.

The traffic loss that should be of greatest concern to the railroad industry is the diversion of traffic for which the railroads actually still possess either a present or a latent comparative advantage. One of the most serious examples of misallocation of traffic is that large truckload shipments moving in excess of 200-250 miles in length, worth nearly $5 billion in 1968, was almost equal to 50 percent of that year's total railroad freight revenues. Such misallocation of traffic raises the cost to society of freight transport by an estimated $1 billion a year. It is estimated that trucks consume approximately four times as much fuel per net ton-mile as railroads.

—A major commitment to containers and intermodalism—using a combination of rail and truck to deliver a shipment—is a necessary first step toward solving the railroads' problems by stressing their strengths and discarding their weak points. Despite its comparatively rapid growth, national containerized traffic still accounts for only about five percent of total railcar loadings, about two percent of freight tonnage, and about six percent of freight revenues.

—Another problem, as a constraint on railroad productivity, is the question of what to do with the parts of the rail network which have become economically burdensome. Large amounts of rural track were built to serve thriving communities which had no alternative means of cheap transport in the nineteenth and early twentieth centuries. Many of these communities have declined or even disappeared, while at the same time the highway has come to serve the transport needs of most rural communities. Obviously, the affected communities protest since they are losing a valuable service, but the railroad, through perhaps no fault of its own, is financially strained.

Long-Term Outlook. Rail employment declines have stopped within the last few years, largely due to increased coal traffic. Although the loss of the Milwaukee and Amtrak resulted in an employment decrease of about 800 jobs, total employment in this industry is expected to gradually increase because of rising coal exports. The expansion of rail transportation would result in more efficient energy use, few land-use consequences, and less pollution by a substantial amount—2 or 3 to 1. Capital requirements, however, are severe and rail profitability is questionable at the present. In view of these considerations, it seems plausible that rail employment will grow somewhat and motor carrier growth will slow.

8.5 TRAVEL AND TOURISM

Approximately 3.5 million visitors came to Montana in 1979. They spent nearly 500 million dollars, generating employment for 10,000 Montanans. Resident travel expenditures in 1979 were estimated to be nearly 400 million dollars. This resulted in a combined expenditure total approaching 1 billion dollars, $172 million dollars in income, and slightly over 20,000 jobs directly related to the travel industry.

The travel industry comprises a variety of economic sectors including transportation, such retail trade firms as service stations and eating and drinking establishments, hotels and motels, auto repair and recreation. The travel industry is larger than the tourism industry since it includes all forms of travel. Tourism, more narrowly defined, is primarily for pleasure (i.e., recreation and visiting relatives and friends) and is estimated to account for approximately 40 percent of the total travel industry. Tourism, resident and non-resident, provides over 8,000 full and part-time jobs and about 71 million dollars in income. A comparison of the relative sizes of resident and non-resident travel and tourism is shown in Table 30. The data provide an indication of the overall economic significance of travel and tourism relative to other economic sectors within Montana. Non-resident travel accounts for 9.4 percent of basic employment and 5.5 percent of basic income in Montana; clearly a very important contribution to the Montana economy. Another way of stating the idea is to say that 9.4 percent of all jobs and 5.5 percent of all income in Montana are provided by non-resident travel expenditures flowing into the state. (It would be inappropriate to apply a multiplier to resident travel or tourism since no additional dollars are brought into the state but are simply redistributed between Montana counties and cities.)

For point of comparison, the non-resident travel sector employs nearly as many workers as the wood products industry and more workers than the entire mining industry. Income impacts, however, are less since wage rates in the travel sector are relatively low, about half those of mining and manufacturing.

Most travel expenditures are estimated to take place in a relative handful of counties. For example, nearly 80 percent of total travel employment is found in 10 Montana counties (see Table 31). Yellowstone County tops the list in terms of total employment but the effect of travel is less important (judged by the percent of total employment accounted for by travel, i.e., 5.3 percent) than in many other areas. Travel employment is large in the Billings area as a result of the high number of business trips and its proximity to tourist destination centers. Even though Gallatin, Flathead, and Glacier counties have fewer travel related employees, the impact is far greater judged again by the percent of total employment. For example, 18.2 percent of total employment in Glacier County is as a direct result of travel and tourism.

Growth Considerations.

—If the automobile count data are correct, the number of non-resident visitors declined about 17 percent between 1977 and 1979, the year of the gas shortage. Although traffic data at the external (border) counters indicate very little change in overall activity, the percent of non-residents counted to total traffic has been falling since 1977. In that year, about 29 percent of all travelers were non-resident while, in 1979, the figure had declined to 24 percent of the total traffic (excluding commerical trucking and buses) at the border stations.

TABLE 30
Tourism Comparison With Selected Industries

Sector	1979 Employment	Percent of Total Employment	1979 Income ($ millions)	Percent of Total Income
TRAVEL (Total)	20,328	5.6%	$172.1	3.9%
Resident Travel	10,143	2.8%	85.9	1.9%
Non-resident Travel	10,185	2.8%	86.2	1.9%
TOURISM (Total)	8,377	2.3%	70.9	1.6%
Resident Tourism	3,043	0.8%	25.8	1.6%
Non-resident Tourism	5,334	1.5%	45.1	1.0%
Agriculture	35,250	9.6%	246.7	5.6%
Mining	7,733	2.1%	200.1	4.5%
Wood Products	10,935	3.0%	196.4	4.4%
Other Manufacturing	15,912	4.3%	292.3	6.5%
Trade and Services	134,375	36.7%	1527.8	34.4%
Rail	6,795	1.9%	168.6	3.8%
Government	76,785	21.0%	922.1	20.7%
All Other	78,142	21.4%	885.0	19.9%
TOTAL	365,927	100.0%	$4,439.0	100.0%

SOURCES: Regional Economic Information System, U.S. Department of Commerce, Bureau of Economic Analysis
Western Analysis, Inc., Helena, Montana

TABLE 31
Top 20 Montana Travel Counties
1979

County	Travel Employment	Percent of of Total Employment	Travel Income $Million	Cumulative Percent of Total Travel & Tourism
1. Yellowstone	3026	5.3%	$25.6	14.9%
2. Gallatin	2582	13.7%	21.9	27.6%
3. Flathead	2070	9.2%	17.5	37.7%
4. Cascade	1704	4.0%	14.4	46.1%
5. Missoula	1620	4.5%	13.7	54.1%
6. Lewis & Clark	1360	5.9%	11.5	60.8%
7. Silver Bow	1309	7.7%	11.1	67.2%
8. Glacier	1066	18.2%	9.0	72.4%
9. Park	638	10.7%	5.4	75.5%
10. Dawson	542	8.7%	4.6	78.2%
11. Hill	344	3.8%	2.9	79.9%
12. Richland	323	5.5%	2.7	81.5%
13. Custer	312	4.6%	2.6	83.0%
14. Beaverhead	303	8.4%	2.6	84.5%
15. Fergus	303	5.1%	2.6	86.0%
16. Roosevelt	264	5.0%	2.2	87.3%
17. Lincoln	261	3.9%	2.2	88.6%
18. Madison	243	10.2%	2.1	89.8%
19. Phillips	225	9.4%	1.9	90.9%
20. Valley	195	3.7%	1.7	91.9%
All Other	1638	n/a	13.9	100.0%

SOURCE: Western Analysis, Inc., Helena, Montana

—According to the U.S. Travel Data Center in Washington, D.C., travel costs increased approximately 30 percent between 1977 and 1979. The rate of increase in 1980 is expected to be nearly double the overall rate of inflation, with gasoline prices rising nearly 50 percent in the last year. Increasing costs and a concern over fuel availability in 1979 resulted in a substantital downturn in out-of-state as well as in-state travel at primary recreational sites, e.g., yearly traffic at West Yellowstone declined 11 percent, at Gardiner 13 percent, Big Sky 7 percent, and at Monida 8 percent. The 1980 picture, although better, nevertheless, reflects a growing concern among Americans who travel long distances to vacation. This concern will create significant problems for Montana because the state is far removed from national population centers. On the basis of proximity to national population Montana ranks forty-third in the nation. On the basis of proximity to regional population centers, Montana ranks last among 48 states. This means that Montana would be the **most** affected state if fuel shortages do occur in a major way and assuming that travel costs are the dominant variable in travel/vacation decisions.

—As national income, crowding, and leisure time increase, it is reasonable to assume that this industry will experience some growth, particularly in light of the natural attractions found in Montana, if Montana can market what it has.

—Rising energy costs also may result in a shift to railroads, buses, and planes and away from private car dominance.

—International tourism will continue to grow in Montana, but at present, this influence is very small.

8.6 OTHER BASIC SECTORS

Federal Government. Federal government employment in Montana has grown at approximately double the national rate since 1960. However, a growing concern over deficit spending and taxes may significantly slow further growth in this sector. Further, employment at military installations is expected to decrease moderately, and may have an impact upon the Great Falls economy. Malmstrom AFB has lost nearly 1000 airmen in the last two years. Although these were not high paying jobs, because of the numbers involved, their influence on Great Falls was substantial.

Heavy Construction. There are several major developments which .could result in increased heavy construction activity over the next five years. These include the construction of Colstrip 3 and 4, and the possible construction of the Northern Tier Pipeline. These projects represent potential developments which are tied to basic economic sectors.

Other Manufacturing. The manufacture of food products in Montana represents another important sector, which employes about 4,000 workers. Employment in this industry has been very stable for the last twenty years. The same has been true nationally. Although there exist several potential options for expanded processing (meat packing and grain milling), employment is not likely to significantly change in the foreseeable future.

Government. Although state and local government is not a basic industry, this sector employes nearly 17 percent of Montana's work force. State and local government employment in Montana and in the nation has increased steadily over the last few years. In general, however, the rate of increase has slowed somewhat from earlier periods. Government growth has not been unique to Montana and was largely the result of the shifts in the composition of employment that were discussed earlier. The derivative sector, of which state and local government is a part, now provides numerous new services in addition to many which once were provided in the home.

Comparisons of growth rates can be either informative or misleading. When analyzing the growth of state or local government employment, the best standard of comparison is probably population growth. As population grows, the demand for public services will also increase. This comparison is more meaningful than a comparison of government with private sector employment, since the latter changes over the course of a business cycle. In addition, a substantial amount of private sector growth has been of a part-time nature, while relatively fewer part-time positions exist in government. Once again, this makes comparisons difficult.

In Montana, state government employment has grown at approximately the national rate since 1965. Since 1970, however, Montana increases have been more consistent with population growth. On the other hand, growth of local government employment since 1970 has been substantially higher than the national average.

In per capita terms the situation is somewhat different. Presently, the per capita employment of state government is comparatively high, while per capita employment of local government in Montana is close to the national norm. For example, in 1975, at the state government level, there were 204 state employees for every 10,000 residents, compared to the national average of 129 employees. At the local level, there were 347 employees per 10,000 residents in Montana, compared to 352 employees nationally. Part of the diference in state government concentration, which has existed for years, is related to Montana's low population, rural nature, and large land area. Other states with similar characteristics also have higher than average government employment per capita. State government expenditures per capita, however, do not vary nearly as much as employment per capita. But, once again, the less populated states tend to have somewhat higher state per capita expenditures.

Since fiscal year 1978, however, state government employment has declined slightly and is not expected to grow in light of budget limitations. Local government growth also is expected to slow down from the rapid pace of the past few years. Much of the local growth has been federally funded, CETA, etc. As local governments have to take over, that also may slow local government expansion.

9 PROJECTIONS: 1990

9.0 THE NATURE OF PROJECTIONS

Projections of employment and population levels are seventy percent trend and one hundred percent judgment. The future cannot be predicted with refined accuracy. However, projections are an important part of planning for the future. The following long-range growth scenario represents Montana's "best idea" as to what the next decade will bring. Table 32 and the associated figures illustrate Montana's most likely pattern of future growth in view of current conditions.

TABLE 32
Long-Range Projections for Montana
(Thousands)

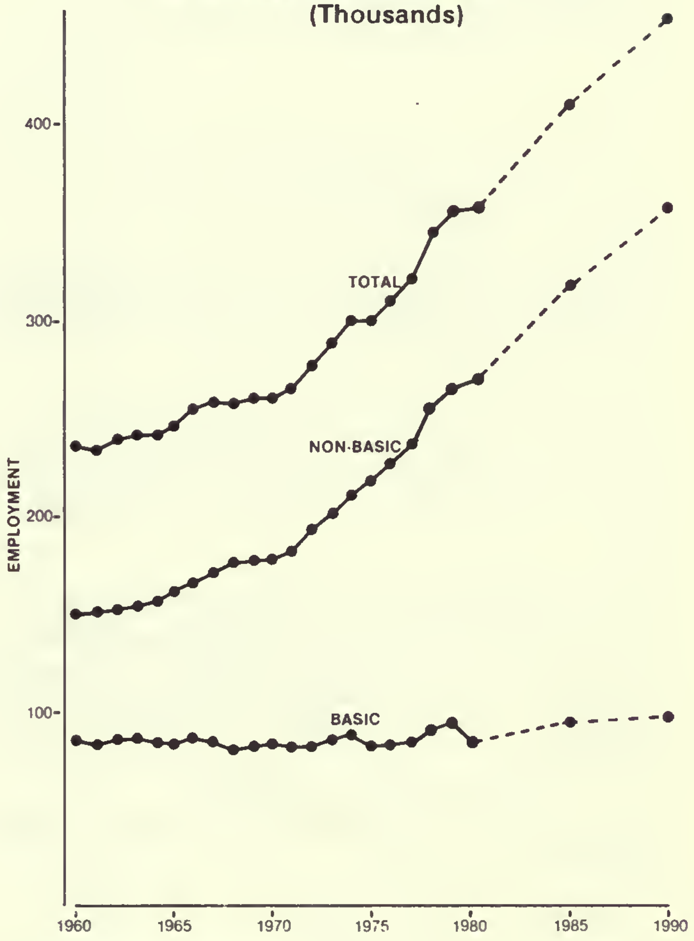
EMPLOYMENT	1980	1985	1990
BASIC			
Agriculture	32.0	31.0	30.0
Mining	7.2	10.3	11.7
Metal*	1.5	2.9	3.2
Coal	1.3	2.1	2.8
Oil and Gas	3.3	4.2	4.6
Other Mining	1.1	1.1	1.1
Manufacturing	23.6	26.2	27.9
Wood Products*	8.5	11.0	11.5
Primary Metals	2.4	1.5	1.5
Food Products	4.0	4.0	4.0
Other Manufacturing	8.7	9.8	10.9
Railroad	7.1	7.3	7.6
Federal Government Including Military	18.0	18.0	18.0
TOTAL BASIC	87.9	92.9	95.2
NONBASIC			
Transportation, Communications and Utilities, excluding Railroad	16.3	17.8	20.0
Construction	15.6	18.2	19.9
Trade	74.9	94.2	106.9
Services**	68.7	85.5	99.7
State and Local Government	58.0	63.0	68.0
Non-Farm Proprietors	34.3	44.0	49.0
TOTAL NONBASIC	267.8	322.7	363.5
TOTAL EMPLOYMENT	355.7	415.6	458.7
POPULATION			
Employment Based	784.0	840.8	893.1
Natural Growth	755.6	794.4	830.1
Migration (from 1970)	28.4	46.4	63.0

*Note: The copper strike and heavy layoffs in woods products reduce 1980 totals

**Note: Includes Finance, Insurance, and Real Estate

SOURCE: Western Analysis, Inc.

FIGURE 15
ACTUAL AND PROJECTED
MONTANA EMPLOYMENT LEVELS
(Thousands)



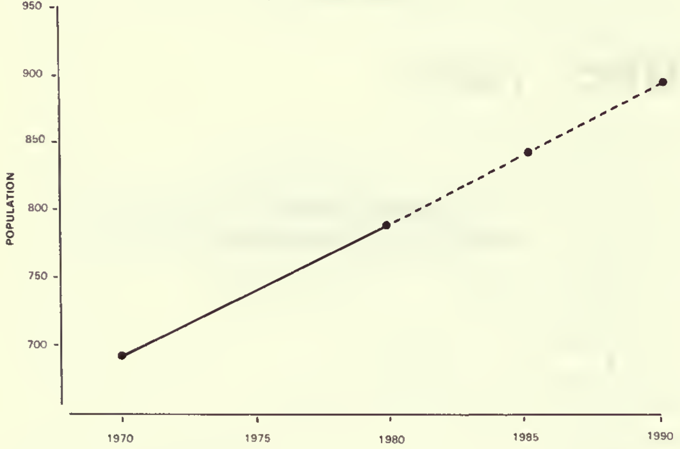
SOURCE: Western Analysis, Inc.

Principal assumptions for the projections are provided below:

Agriculture: Future productivity increases will be similar to gains experienced within the last 15 years. Although beef and grain output will increase, farms and ranches will be larger and more mechanized, resulting in decreases in employment.

Metal Mining: Long-term national projections call for moderate increases in copper output over the next twenty years. In addition, one new mine (ASARCO at Troy) will be in operation within three years. An expansion in other metals (gold, iron, etc.) also is expected.

FIGURE 16
EXPECTED POPULATION LEVELS
(Thousands)



SOURCE: Western Analysis, Inc.

Coal: Montana's coal output will continue to increase in the future with relatively sharp expansion occurring from 1980 forward. The importance of coal as a national energy source will increase.

Oil and Gas: Substantial growth has occurred in oil and gas exploration within the last few years. Energy shortages will maintain this expansion. Secondary and tertiary recovery techniques also will add to employment.

Wood Products: The demand for forest products will remain high, but raw material supplies will be more uncertain. However, the total timber harvest is assumed to remain constant. Employment growth will result from new product development and more efficient use of wood fiber.

Primary Metals: No change. ARCO remains closed; Columbia Falls is safe.

Food products: No change.

Other Manufacturing: Light industry will continue to expand at the present rate. No synthetic fuel plants are expected until after 1990.

Transportation: Light density lines will be abandoned and the more profitable lines of the Milwaukee Road will be absorbed. Rising energy costs and coal export will result in overall employment increases. Motor carrier employment growth will slow.

Federal Government: Federal employment growth will slow and moderate military reductions will occur, resulting in a near constant level of federal employment.

Nonbasic Employment: Trade and service related growth rates will slow as Montana reaches the national level of service and trade concentration. A declining labor force growth (the end of the baby boom phenomenon) also will contribute to this decrease in the rate of expansion. Only very limited increases are expected in state and local government, much less than during the past decade.

9.1 DEMOGRAPHIC DETAIL

These projections (see Figure 17) indicate that:

* The number of elementary school aged eligibles (6-13 years) will increase approximately 20 percent within the next decade.

* The number of high school aged eligibles (14-17 years) will continue to decline, until 1985, but will increase slightly by 1990.

* The number of college aged eligibles (18-21 years) will decline approximately 19 percent during the 1980's.

* The number of individuals in the high crime risk cohort (18-34 years) will continue to increase until 1985 but then decline slightly.

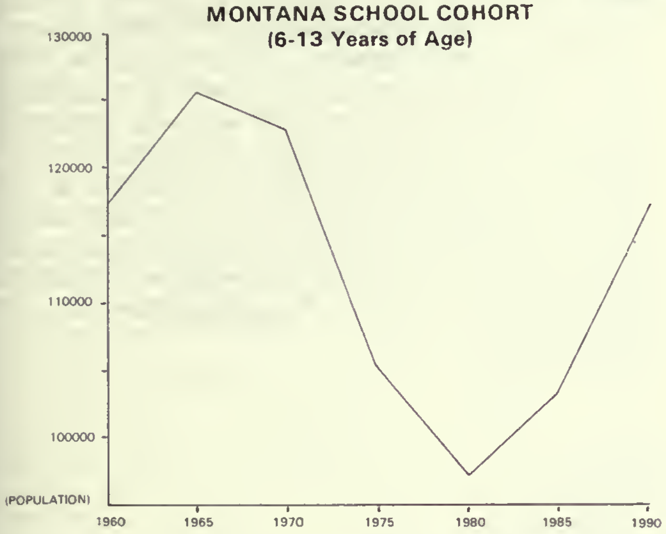
* The labor force group (16-64 years) will continue to grow over the next ten years, but at a much slower rate than experienced in the 1970's.

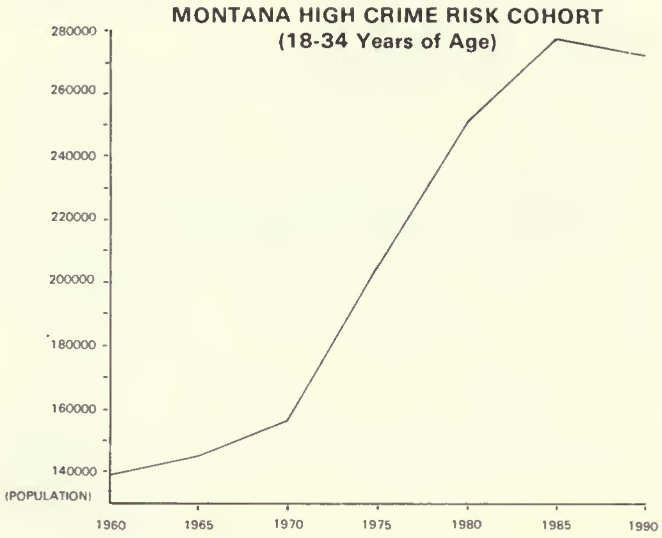
* The number of individuals of retirement age (over 65 years) will continue to grow at the current rate, steadily increasing the size of this cohort as the population ages.

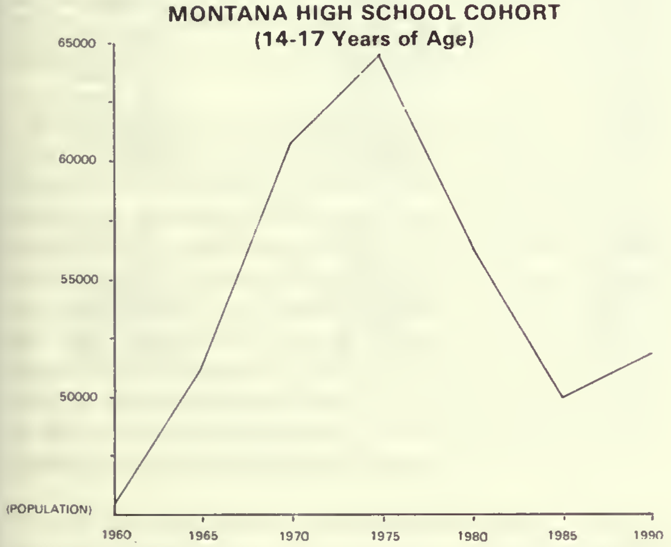
The demand for public services, the problems public agencies face in providing those services and the solutions they devise for those problems are determined in a large measure by the composition of the population. Many of those future demands are the result of past events, not expected occurrences. Everyone who will be a mature worker, potential college student or pensioner in the next 20 years has already been born. Clearly, some degree of uncertainty surrounds the level of migration into Montana within the next decade or the change in fertility rates, but these issues are generally secondary in nature.

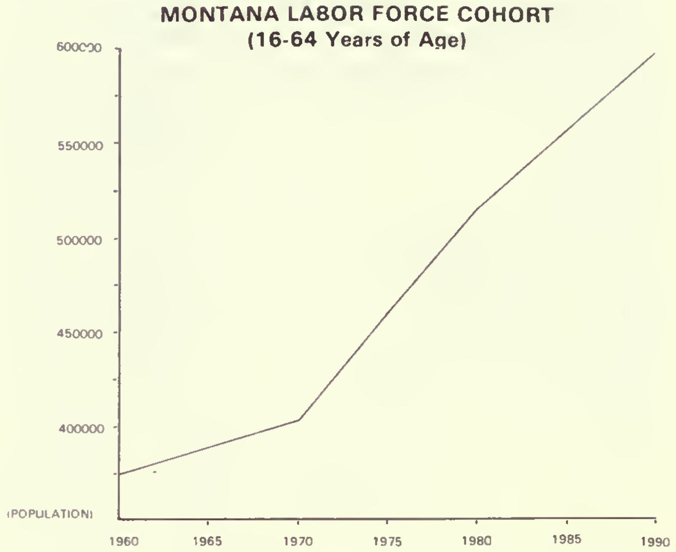
Without any doubt, certain types of services, such as higher education, will feel the strain of demographic shifts much more than others. The effects of population change on other types of services are more subtle but, nevertheless, constitute an influence which should be considered in many, if not most planning decisions.

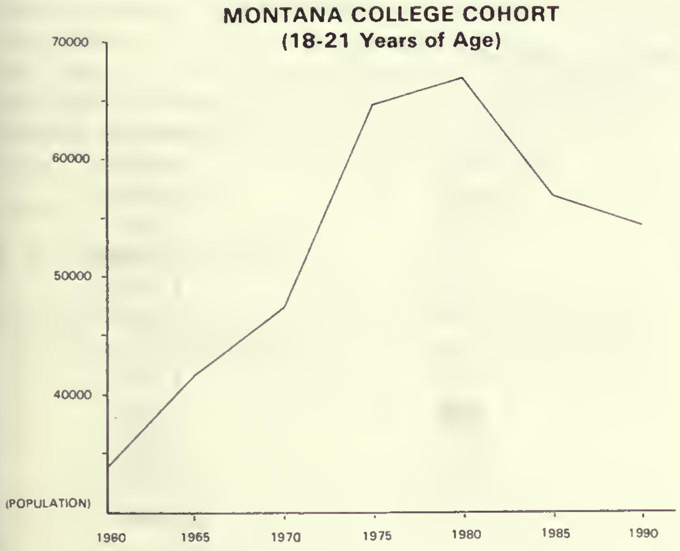
FIGURE 17
DEMOGRAPHIC PATTERNS

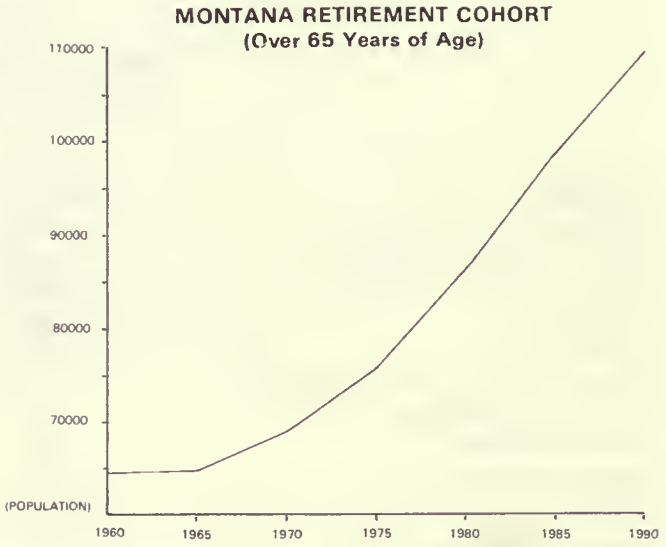

MONTANA SCHOOL COHORT
(6-13 Years of Age)


MONTANA HIGH CRIME RISK COHORT
(18-34 Years of Age)


MONTANA HIGH SCHOOL COHORT
(14-17 Years of Age)


MONTANA LABOR FORCE COHORT
(16-64 Years of Age)


MONTANA COLLEGE COHORT
(18-21 Years of Age)


MONTANA RETIREMENT COHORT
(Over 65 Years of Age)

SOURCE: Estimates and Projections by Western Analysis, Inc.
1960 and 1970 Data, U.S. Bureau of the Census

9.2 OCCUPATIONAL DYNAMICS

State projections of particular note include the continued, although slowing, decline in agriculture, the sharp decline in the rate of increase in public service jobs between now and 1985, sharp increases in mining employment, and continued high rates of increase in retail trade and service jobs. Overall, jobs are expected to increase at an annual rate of 2.9 percent per year between 1980 and 1990, down slightly from the 3.4 percent per year increase experienced during the 1970's.

Total occupations for the state, by major category, are shown in Table 33. Currently, almost one-half the jobs in Montana fall in the professional and technical, clerical, and service worker occupational categories. This situation is expected to continue into the foreseeable future. In Montana, blue-collar workers, including craftsmen, operatives, and nonfarm laborers, will continue to comprise about one-fourth the workforce. We expect that almost 30 percent of the new jobs will be found in the first two occupational groups, professional/technical, and managers/administrators. (Table 34 shows the annual number of expected jobs by occupational category.)

TABLE 33

Occupations in Montana
Actual and Projected (1970-1985)

Occupation	Average Employment 1970	1976	1980	1985
Professional, Technical	40,202	48,517	54,416	60,759
Managers, Administrators	24,244	30,272	35,302	41,052
Sales Workers	13,702	17,791	21,317	25,765
Clerical	36,703	45,324	52,145	59,641
Craftsmen	27,388	31,470	36,830	41,876
Operatives (Excluding Transport)	17,047	18,547	21,748	24,958
Transport Operatives	9,023	10,776	12,364	13,916
Service Workers	34,101	42,593	48,938	57,632
Laborers (Nonfarm)	10,875	12,453	14,271	16,007
Farm Workers	34,101	29,825	28,210	26,908

SOURCE: Western Analysis, Inc.

TABLE 34

Montana Annual Job Opportunities
By Occupation (1976-1985)

Occupation	Industry Expansion	Replacement Needs	Average Annual Openings
Professional, Technical	1,360	1,525	2,887
Managers, Administrators	1,198	1,312	2,510
Sales Workers	886	733	1,619
Clerical	1,591	2,390	3,981
Craftsmen	1,156	918	2,074
Operatives (Excluding Transport)	712	519	1,231
Transport Operatives	348	200	548
Service Workers	1,671	2,817	4,488
Laborers (Nonfarm)	395	349	744
TOTAL	9,319	10,763	20,082

SOURCE: Western Analysis, Inc.

Other white-collar jobs, such as sales, clerical, and service workers, are projected to increase by 21,000 through 1985. These figures represent about 50 percent of the total job increase. Sales workers are expected to be the fastest growing occupational group in the state. Much of the growth of sales workers will be due to continued expansion in the retail trade industry which employes over one-half of these workers. Many sales workers also are found in wholesale trade, manufacturing, real estate, and insurance industries. Service workers include a wide range of jobs—firefighters, janitors, cosmetologists, private household workers, cooks, and bartenders are a few examples. Some of the main factors that are expected to increase the need for these workers are the rising demand for medical care; the greater need for commercial cleaning and protective services; and the more frequent use of restaurants, beauty salons, and leisure services as incomes rise. Clerical workers provide business and government with secretaries, bookkeepers, office machine operators, typists, receptionists, and cashiers. Technological change in information processing will greatly affect employment in many occupations within this group.

Blue-collar jobs are expected to increase by almost 24,000 new jobs in the next five years. Almost one-half of these new jobs will be attributable to increases in the craftsman category, which includes a wide variety of highly skilled workers such as carpenters, metal workers, printers, all around machinists, electricians, and automobile mechanics. About 40 percent of the jobs are expected to occur in the operatives group, which is tied closely to the manufacturing industries and the transportation sector. Nonfarm laborers make up the remaining increase in jobs. These are usually unskilled and semi-skilled occupations.

Table 34 incorporates replacement needs in each occupational category to determine average annual job openings for the period 1976-1985. Because of high rates of turnover, the total demand for clerical and service workers is increased by about 50 percent over that due solely to employment expansion. Replacement needs are relatively less important in determining total average annual openings in the blue-collar occupations.

9.3 IMPLICATIONS

The projections suggest a positive future for Montana, very similar to the expansion which has taken place since 1970. Basic employment levels are expected to rise slightly, a favorable comparative change in view of the national trend. Even though nonbasic employment growth probably will slow somewhat when compared to the "boom" during the 1970's, overall employment growth is likely to be strong.

Population also is expected to grow at about the same rate as experienced during the past decade, with continuing in-migration accounting for a substantial part of the increase.

The per capita income differential between Montana and the rest of the nation, however, may persist. Generally, as rural states become more urbanized and as participation rates and nonbasic activity converge with the national norm, these income differences become smaller. But, in Montana there are no current signs of convergence.

The statewide outlook is good, with employment increases expected to keep pace with population growth. Although Montana's specialization in natural resource industries may give the state the illusion of being underdeveloped, it is not—it just has developed in a different way than the manufacturing areas of the nation. This does not imply that increased industrial diversification, when possible, would not benefit the state—particularly in certain areas—but it does imply that the overall economy of the state is doing well and should prosper in the future. To be sure, industrial diversification will occur in Montana. This metamorphosis, however, will be as slow as it was elsewhere and will be determined by economic feasibility rather than wish. But, most importantly, if any of the major natural resource or supporting sectors falter, the economic gains of the 1970's may quickly be lost.

Montana is fortunate to be endowed with timber, minerals, and extensive agricultural lands. The future of Montana will rest on these riches and upon the decisions which affect their use. Many crucial trade-offs will exist in the future. For example, a national farm policy which would benefit Montana would necessitate higher food prices, and would be met with national resistance. Timber cutting and mining policies are even more complex when environmental costs are weighed. No simple solutions exist in such complex situations, but Montanans should insure that their input is made known to national and state decision makers, private and public, when the vitality of the economy and the quality of the environment are at stake.

10 PROBLEMS, GOALS, AND OBJECTIVES

10.0 GROWTH PROBLEMS AND ISSUES

Montana's current economic problems can be categorized into three broad areas: (1) uncertainty in the primary sectors as a result of economic events that are often beyond Montana's direct control; (2) uneven growth from area to area; and (3) lack of diversification.

Examples of such problems include the bankruptcy of the Milwaukee Road, the proposed Bonneville Power Administration rate changes, federal timber management policies and wilderness designation, energy shortages in the face of growing demand, copper prices and imports, and agricultural export policy. These are issues which require careful consideration on the part of state government in order to effectively present mitigating solutions. These issues will not disappear and must be faced head-on.

General Growth Issues.

—Although Montana's overall economic performance has been favorable, there are many areas within Montana where employment growth has not kept pace with the national growth in population—resulting in out-migration. While all counties cannot grow at the same rate, Montana is particularly concerned about the long-run consequences of the continued loss of young people in several dozen counties. In some instances, this youth drain has resulted in increases in the median age to the point where future economic growth may be hampered.

Furthermore, computer analysis of employment and population growth prospects suggests that approximately twenty counties will continue to experience moderately high levels of out-migration through the next decade. Generally, these areas are rural in nature, but there are several cities as well, including Butte, Anaconda, and Great Falls. Statewide growth has been, and is expected to be, sufficient to allow individuals to find jobs in their own state, but not necessarily in their home county.

—Of the 90,000 current basic sector jobs within Montana, as many as 10,000 may face major constraints within the next five to ten years. Changes in farm policies, outmoded plant technology, rising energy costs, restrictive timber management practices, and unfavorable import/export policies have the potential to significantly impact some of Montana's most important industries. Nearly all of these possibilities are the result of external changes beyond the direct control of the state.

—Montana's income continues to lag behind the national norm. At the state level, the significance of this issue is difficult to measure, but there exists as many as ten counties within the state which have a substantial income discrepancy, 20 percent or more below the national average.

Transportation.

—As a result of Montana's remoteness from major trade centers, the state's growth may be relatively more affected by rapidly rising energy costs than other areas of the nation. Of particular concern is the possible loss of competitive rail rates for agricultural products. Federal deregulation of air and motor carrier traffic may also present difficulties for Montana during the adjustment period. There is a need for federal assistance in financing, developing, and facilitating an inter-modal transportation system specific to rural America.

Energy.

—Many Montanans are concerned about the intensifying demand for the state's non-renewable energy resources. Montana will continue to contribute to the nation's energy needs, but should not be expected to bear the full cost—both in the growth impact and in the uncertain future once these energy reserves are depleted.

—In order for Montana to better assess the need for future energy facilities, an improved forecasting and analysis capacity is important. In addition, better siting procedures should be developed to place new facilities in appropriate locations and to improve the efficiency by which such decisions are made.

—While the consumption of energy and the necessity to conserve will touch all Americans, Montana will more than likely incur greater impacts through increased coal production and oil and gas exploration. Federal energy policy, which now points to Montana and the West as the energy source of the future, should be both sensitive to and responsible for the effects. Oil, gas, and coal development on federal lands must incorporate a reasonable effort to ensure that neither Montana's environment nor its economic balance is adversely disrupted. Given the urgency of national needs, Federal impact assistance will be necessary to help affected communities cope with the problems of rapid growth.

Alternative forms of energy—solar, geothermal and synthetic fuels—will play an increasingly important role in attaining national energy independence. These creative new techniques for capturing and harnessing power should receive the full research and development attention necessary to lead to commercialization. Montana already has an active effort; the MHD facility in Butte and the state's renewable energy grant program constitute two good examples of a commitment to explore, research, and promote practical and environmentally sound solutions to long-run shortages. Development interest in coal derived fuels and in ethanol from grain is also rapidly increasing. All Americans must join in a collective and enduring drive to promote new energy development. This challenge must and will be met.

Natural Resources.

—The mainstay of western Montana, the forest industry, also hangs in the balance of federal policy—land management procedures and wilderness designation are good examples. Although RARE II is not likely to significantly impact this industry, the National Forest Management Act or other related management decisions **could.** A forward looking attitude toward timber management, jobs, and the environment is necessary in order to maintain equilibrium.

—For similar reasons, excessive restrictions on grazing could result in hard times for Montana ranchers. Grazing should continue to be allowed on all federal lands. At a minimum, the natural character of these areas should be preserved. Improved range management can result in higher carrying capacity.

—Water is a scarce commodity within the West. One specific concern to Montana is the potential for large quantities of water being diverted to energy-related activities. The necessary adjudication of all water rights and their respective allocations must be tended to with diligence and equity. Multi-state water compacts must be negotiated with unprecedented precision.

Economic Development.

—Montana's basic industries require increased research and marketing assistance in order to expand, develop, and promote new products. An expanded partnership between the private and public sectors will help strengthen the state's economy. The economic future of Montana lies not so much in attracting new business but in the future development of what already exists. Further vertical integration is extremely important.

—Capital shortages, cursed by some and scoffed by others, should be more fully investigated. When constraints do exist, the financial community and state and federal agencies should introduce innovative methods while maintaining the integrity of private capital markets.

—The economic vitality of many areas within the state is tied up to a single basic industry. The need is to help communities diversify in order to lessen the effects of boom and bust cycles. The potential closing of military installations or the long-term decline of major plant facilities represent real problems facing Montana today. Communities with the assistance of federal, state, and local government should begin to take steps to avoid crisis situations, many of which can be projected years in advance.

—Federal and state government should strive to create a balanced business climate which stimulates growth in productivity through research assistance, improved education, tax incentives, and an easing of burdensome or counter-productive regulations.

—Export marketing of many Montana products is extremely important as are the effects that quotas and tariffs have on trade. But, trade-offs exist between national and state considerations. Federal policy should always be sensitive to state impacts. When this is not possible, recovery assistance should be made available to affected communities.

Community Problems.

—Federal actions should acknowledge and mitigate impact on states; states should acknowledge and mitigate the impact of their laws and regulations upon counties and cities. Even the cost of good decisions may be difficult to meet by smaller jurisdictions where the true impacts are felt. Increasing hospital, nursing home, and water standards are good examples of well intended regulations—improperly funded where funds are most needed.

—Communities are faced with a baffling array of federal assistance programs. Montana state government should begin to simplify, or at least explain in an understandable way, the nature, problems, and advantages of such programs. Specific attention should be given to urban renewal, economic development assistance, housing, water and sewer grants, etc.

—Community health and education are the backbone of society. But many such programs are geared, quite understandably, toward urban areas where most people live. In rural regions, urban solutions do not always fit. Rural health care and human service needs are frequently very different than the urban needs for which programs were designed. Modifications and adjustments should be allowed when necessary.

Human Rights.

—The heritage of native Americans should be acknowledged and respected. The special problems of native Americans should be examined in connection with all policy issues.

Summary.
—An efficient and environmentally sound economy requires the understanding cooperation of the private and public sectors—both of which play a necessary role. Improved understanding and reasonable compromise are as imperative to the quality of our economic and environmental well-being as they are to our individual rights. Cooperation must be improved, given the intensity of conflict surrounding many current economic and social issues. Balanced growth is certainly the key to the future.

10.1 GOALS FOR THE 1980s

The following section is derived from the goal statement of the Governor's Balanced Growth Program. This program, conducted during 1978-79, represents a careful review of the legitimate goals and concerns of Montana's residents. The program, including a series of public forums, was designed to explore mechanisms for state planning in a manner consistent with public attitudes toward environmental, economic, and social issues.

Introduction. "All government of right originates with the people, is founded upon their will only, and is instituted solely for the good of the whole." (Section I, Article II, Montana State Constitution) In a representative democracy, policy is established by the people to express their will. In Montana, the will of the people is identified through the deliberations of the Legislature and is executed by the Executive Branch. Both the Legislative and Executive Branches remain answerable to the people for the direction in which they point the state. The future of Montana belongs to the people; state government has the responsibility to help prepare a future which will enhance the health, welfare, safety, and economic security of all Montanans.

Defining a future for Montana must include a partnership between government—the benefactor and regulator—and private enterprise—the investor and worker. Some Montanans favor accelerated industrial development—coal-fired electric generation; exporting Montana coal; increased logging, milling, and industrial production from forest products; increased meat packing and grain milling; vastly increased light and heavy manufacturing. They reason that this type of development will lead to more and higher paying jobs for Montanans, an increased tax base, and, hopefully, lower taxes. Other Montanans believe that Montana is fine as is. Increased industrial development will only bring an increase in in-migration from outside the state, even higher unemployment as in-migration outruns the supply of jobs, burdensome demands on communities to supply schools, streets, utilities, etc. In light of these opposing points of view, it is necessary for Montana to articulate a policy for the state's growth which will meet the aspirations of a broad base of the citizenry.

By adhering to some basic principles which Montana citizens have consistently reaffirmed, the state can achieve balanced growth.

- Montana should encourage the conservation and maintain the quality of its natural resource base —land, water, air—to provide a substantial yield and continuing basis of employment and income for the state's citizens while supplying food, fiber, and recreation for itself, the nation, and the world;
- Agriculture is vital to the future of Montana. The state shall remain committed to the preservation and enhancement of the agricultural sector of the economy, and prevent unnecessary conversion of prime agricultural land and water suitable for irrigation to non-renewable uses;
- The state shall encourage the development of renewable energy sources and energy conservation.
- The state shall encourage local decision making in questions of economic development. Consistent with local preferences, Montana shall encourage the economic revitalization of those areas within the state which have experienced decline and assist people in rural areas to find decent jobs near their homes.
- Montana recognizes the importance of an educated citizenry and the value of a productive, well-trained work force. The state shall provide a quality elementary and secondary school system and other educational programs as necesary to meet the intellectual and career development of Montana's citizens.
- Montana shall seek opportunities for all citizens so that they may participate in the state's economy to the fullest extent. To that end, Montana is prepared to provide income security, training, and rehabilitative services to those in need.
- State government is to provide services to the citizens of Montana and shall do so effectively and at minimum costs.
- Montana is committed to the practice of citizen participation in all levels of governmental decision making.
- All citizens have a share in the future of Montana, the services state government provides, and a responsibility to equitably share in the cost of providing those services.

Goals for Montana.
The overall philosophy and principles of balanced

growth can be expressed in a set of goals for Montana. These goals state a combination of desired results and serve as guideposts for governmental action. The goals are a link between the philosophy of balanced growth and the means of accomplishing balanced growth. By stating as clearly as possible the results desired, the goals provide the basis for developing the methods to accomplish the results.

In considering the goals it should be understood that the combination of goals may be as important as any single goal. Because one goal may limit the degree to which another can be achieved, the concurrent achievement of these goals requires creative and, perhaps, complex action.

The achievement of these goals is not the sole or even, in some cases, the prime responsibility of the government. These goals indicate a state of affairs to which state government would be expected to make a positive contribution, but whose accomplishment will depend importantly on private, voluntary efforts and the efforts of other governments. The responsibilities of state government will be expressed in the statement of balanced growth strategies and actions designed to accomplish the goals.

Economic Goals.

Montanans should have expanded opportunities to own and manage their own competitive business enterprises.

Jobs should be available for Montanans that are sufficient to avoid unacceptable levels and patterns of unemployment in the state and that provide opportunities for meaningful and satisfying work.

Jobs and business activity should be distributed, to the degree possible, in a manner that avoids excessive growth in areas limited in their capacity to absorb growth. Growth should be encouraged in areas that desire and have the capacity for additional growth.

The income gap between Montana and the rest of the nation should be progressively reduced.

Montana should influence the major corporate or federal decisions that affect the development of resources in the state.

A strong agricultural base, with dispersed ownership, should be retained. Prime agricultural resources should be protected from unnecessary diversion to other uses.

Environmental Goals.

Whenever possible, natural resources should be used and maintained in a condition that allows for their reuse in the future on a sustained yield basis. Whenever reuse is not possible, the loss of a resource from the resource base should be mitigated.

The environment of the state should not be significantly degraded, and the levels of pollution should be decreased for those areas with recognized pollution problems.

Areas with high quality environmental, historical, or recreational values should have those values protected.

Social Goals.

Social patterns should be encouraged that support individuals in family groups which serve the needs of their members for personal care and development.

Individual sense of security and freedom from fear of life or property should be guaranteed.

The existence of a strong economy, stable and supportive families, a safe and healthy environment for living and working, and an effective educational system should minimize the dependence of individuals for basic support by the public. Individuals unable to provide for themselves should be provided the basic necessities of life in a manner that protects their dignity within their home communities if possible.

Equal opportunities should be available for individuals to develop their capacities to their full potential. Personal development should not be impeded by discrimination of race, sex, religion, creed, or national origin.

The general incidence of disease and disability should be reduced.

Access to necessary medical care should not be denied for financial reasons. The total cost of medical care should be at a level that can be effectively borne by Montanans, individually or together.

Opportunities for learning should be as diverse and as widely available as possible. Knowledge of Montana and its people, its resources, and its heritage and culture should be continuously developed and made available to the public.

Governmental Goals.

State government should guarantee the constitutional rights of every individual and should respect those rights in the conduct of all its activities.

State government should effectively achieve the purposes assigned to it at the least possible cost and with the least possible interference with individual freedom.

State government should be open, accessible, and accountable to the public.

Services of general public benefit should be financed on the basis of the ability to pay as determined by earning capacity and net wealth.

11 SUMMARY

MONTANA'S FUTURE

What, then, is the direction of Montana's economy? Montanans' individual efforts will determine the future. This will often involve painfully careful analysis and vigorously contested decisions if we are to grow in a balanced and reasonable way.

There will be many conflicts. Montanans must strive for growth which maintains the level of environmental and social qualities desired by the people. Montanans must identify areas suitable for increased growth and activity, taking into consideration the existing economic base, availability of materials and energy, labor market factors, transportation, market demand, and environmental quality. Montanans should foster our renewable resources such as forests, water, wildlife, and agriculture, under a concept of stewardship for future generations. If our alternatives are continually analyzed within the context of "what" and "for whom" benchmarks, the overall welfare of our people will be enhanced.

Many crucial trade-offs will exist in the future. No simple solutions exist in such complex situations, but Montanans should make their input known to national decision makers when the health of the vital basic industries is at stake.

In keeping with the goal of open government and a healthy business environment, let us all work together—business and government—so that Montana in the future will be as it is today, healthy and prosperous; a good place to live. But, if Montana chooses to make no decisions or if the state makes decisions which are not consistent with national goals, then those few decisions that Montanans might influence will be made elsewhere by individuals far less sensitive to the state's "total" environment, including the economy.

APPENDIX

TABLE A-1
SEASONALITY AND UNEMPLOYMENT

COUNTY	Unemployment (75) %	Seasonality* Index %	Employment Growth (70-75) %	Population Growth (70-75) %
Beaverhead	6.5	9.7	8.4	1.4
Big Horn	9.1	10.8	2.9	8.4
Blaine	7.7	7.7	3.9	1.1
Broadwater	8.4	9.5	-14.9	10.8
Carbon	7.8	8.4	6.9	8.8
Carter	3.8	3.6	-5.1	-2.9
Cascade	8.2	10.1	7.1	3.5
Chouteau	4.0	5.0	2.4	-4.2
Custer	5.4	12.2	8.0	-1.4
Daniels	2.5	5.4	2.9	-2.7
Dawson	5.0	11.9	5.6	-7.7
Deer Lodge	8.3	12.8	6.3	-2.9
Fallon	3.5	8.5	8.9	-1.2
Fergus	6.7	11.2	2.6	2.2
Flathead	13.0	13.5	14.0	12.3
Gallatin	7.7	13.4	14.8	16.3
Garfield	3.5	5.2	-1.3	-10.9
Glacier	8.3	13.2	4.4	7.6
Golden Valley	6.7	4.0	2.3	0.0
Granite	9.3	8.1	5.6	-1.4
Hill	6.0	10.6	10.7	3.1
Jefferson	11.0	9.2	9.0	39.4
Judith Basin	6.6	4.0	-1.2	1.2
Lake	10.3	9.3	7.9	17.7
Lewis/Clark	6.1	11.9	5.6	10.9
Liberty	4.1	6.4	4.6	6.0
Lincoln	16.6	15.3	7.0	8.5
McCone	2.9	6.2	7.5	-6.1
Madison	8.8	7.5	4.0	15.7
Meagher	12.3	8.1	3.0	3.7
Mineral	14.1	13.9	19.9	18.3
Missoula	9.4	13.3	9.7	12.6
Musselshell	7.1	10.3	9.9	9.8
Park	9.6	11.0	8.3	7.2
Petroleum	3.5	3.7	-5.9	-2.5
Phillips	6.0	8.1	5.7	2.1
Pondera	5.6	6.9	-2.0	4.4
Powder River	3.3	7.0	-3.4	-19.6
Powell	8.3	9.7	7.2	11.1
Prairie	2.7	6.4	12.3	8.4
Ravalli	11.7	10.0	12.5	27.7
Richland	5.0	11.3	13.4	-1.4
Roosevelt	6.9	9.4	13.1	-3.5
Rosebud	4.3	8.2	26.4	29.8
Sanders	11.1	10.3	9.6	14.2
Sheridan	4.0	7.2	6.3	-6.5
Silver Bow	10.4	11.6	8.4	3.1
Stillwater	6.3	6.4	6.6	14.4
Sweet Grass	4.2	9.0	4.5	0.0
Teton	6.1	5.9	4.5	6.3
Toole	5.5	9.4	6.7	-7.5
Treasure	7.5	4.8	4.3	14.9

TABLE A-1
SEASONALITY AND UNEMPLOYMENT

COUNTY	Unemployment (75) %	Seasonality* Index %	Employment Growth (70-75) %	Population Growth (70-75) %
Valley	7.5	11.5	7.6	15.9
Wheatland	4.1	7.8	3.4	-9.1
Wibaux	5.7	5.9	2.6	0.0
Yellowstone	6.7	13.4	19.2	11.4

SOURCES: Department of Labor and Industry, Employment Security Division, handbook rate.
United States Bureau of the Census
Western Analysis, Inc.

*NOTE: Calculation of Seasonality Index

$$\underset{(\text{county}_i)}{\text{index}} = \sum_{j=1}^{23} X_j E_{ij} / E_j$$

Where X_j = seasonal index industry_j

E_{ij} = employment industry_j, county_i

and E_j = employment industry_j, state

X_j was derived using monthly state data (790 Series) from 1960-1975 and was calculated for each industry as follows:

$$X_j = \frac{\text{High} - \text{Low Employment Month}}{\text{Average Employment}}$$

Regression Results:

$$\underset{1975}{\text{Unemployment Rate}} = \left(f\ \underset{1975}{\text{Seasonality,}}\ \ \underset{1970\text{-}75}{\overset{\text{Employment}}{\text{Change,}}}\ \ \underset{1970\text{-}75}{\overset{\text{Population}}{\text{Change}}} \right)$$

or in equation form:

$$Y = 1.74 + .63(X_1) - .18(X_2) + .16(X_3)$$

$t = 5.44 \quad t = -2.65 \quad t = 4.92$

$\bar{R}^2 = .55$

$F = 21.3$

$DW = 2.10$

TABLE A-2

COUNTY EMPLOYMENT MULTIPLIERS

(not income adjusted)

County	Employment Multiplier	County	Employment Multiplier
1. Beaverhead	1.11	29. Madison	.61
2. Big Horn	0.89	30. Meagher	.72
3. Blaine	1.06	31. Mineral	.76
4. Broadwater	.70	32. Missoula	1.68
5. Carbon	.78	33. Musselshell	.89
6. Carter	.58	34. Park	.94
7. Cascade	1.28	35. Petroleum	.44
8. Chouteau	.58	36. Phillips	.96
9. Custer	1.55	37. Pondera	1.10
10. Daniels	.87	38. Powder River	.54
11. Dawson	.99	39. Powell	.69
12. Deer Lodge	.72	40. Prairie	.76
13. Fallon	1.01	41. Ravalli	1.04
14. Fergus	1.10	42. Richland	1.06
15. Flathead	1.22	43. Roosevelt	1.09
16. Gallatin	1.13	44. Rosebud	.62
17. Garfield	.54	45. Sanders	.93
18. Glacier	.81	46. Sheridan	.88
19. Golden Valley	.49	47. Silver Bow	1.20
20. Granite	.64	48. Stillwater	.79
21. Hill	1.35	49. Sweet Grass	.85
22. Jefferson	.56	50. Teton	.78
23. Judith Basin	.59	51. Toole	1.09
24. Lake	1.01	52. Treasure	.60
25. Lewis/Clark	1.27	53. Valley	.87
26. Liberty	.71	54. Wheatland	.76
27. Lincoln	.59	55. Wibaux	.62
28. McCone	.57	56. Yellowstone	1.54

INCOME ADJUSTMENTS

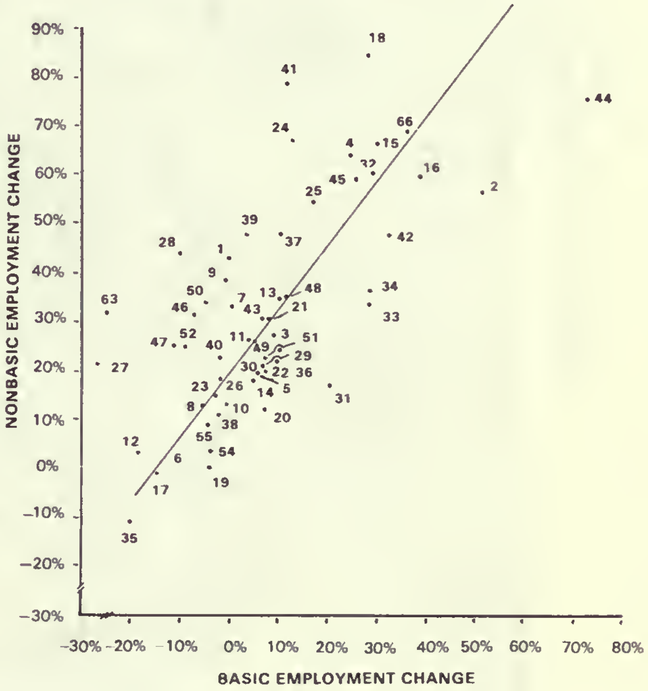
(To adjust for income multiply by the following indexes)

Sector	Income Index
1. Agriculture	1.000
2. Metal Mining	1.599
3. Coal	1.785
4. Oil & Gas Mining	1.450
5. Other Mining	1.406
6. General Bldg. Construction	1.223
7. Heavy Construction	1.753
8. Special Trade Const.	1.193
9. Wood & Paper Products	1.290
10. Primary Metals Mfg.	1.477
11. Other Durable Mfg.	1.159
12. Food & Kindred Products	1.124
13. Print & Publish	1.006
14. Petroleum Refining	1.732
15. Other Nondurable Mfg.	1.125
16. Railroad Transport	1.740
17. Other Transportation	1.217
18. Utilities & Communic	1.364
19. Wholesale Trade	1.240
20. Auto Deal & Service Station	0.907
21. Eating & Drinking Est	0.470
22. Other Retail	0.790
23. Fin., Ins., Real Estate	1.007
24. Hotel & Lodge Places	0.515
25. Health Services	0.806
26. Other Services	0.617
27. Fed. Govt. — Civilian	1.449
28. Fed. Govt. — Military	1.374
29. State & Local Govt.	0.915
30. Nonfarm Proprietors	1.276
31. Tourism	0.544

SOURCE: West Model (Western Economic Simulation Technique) Western Analysis, Inc.

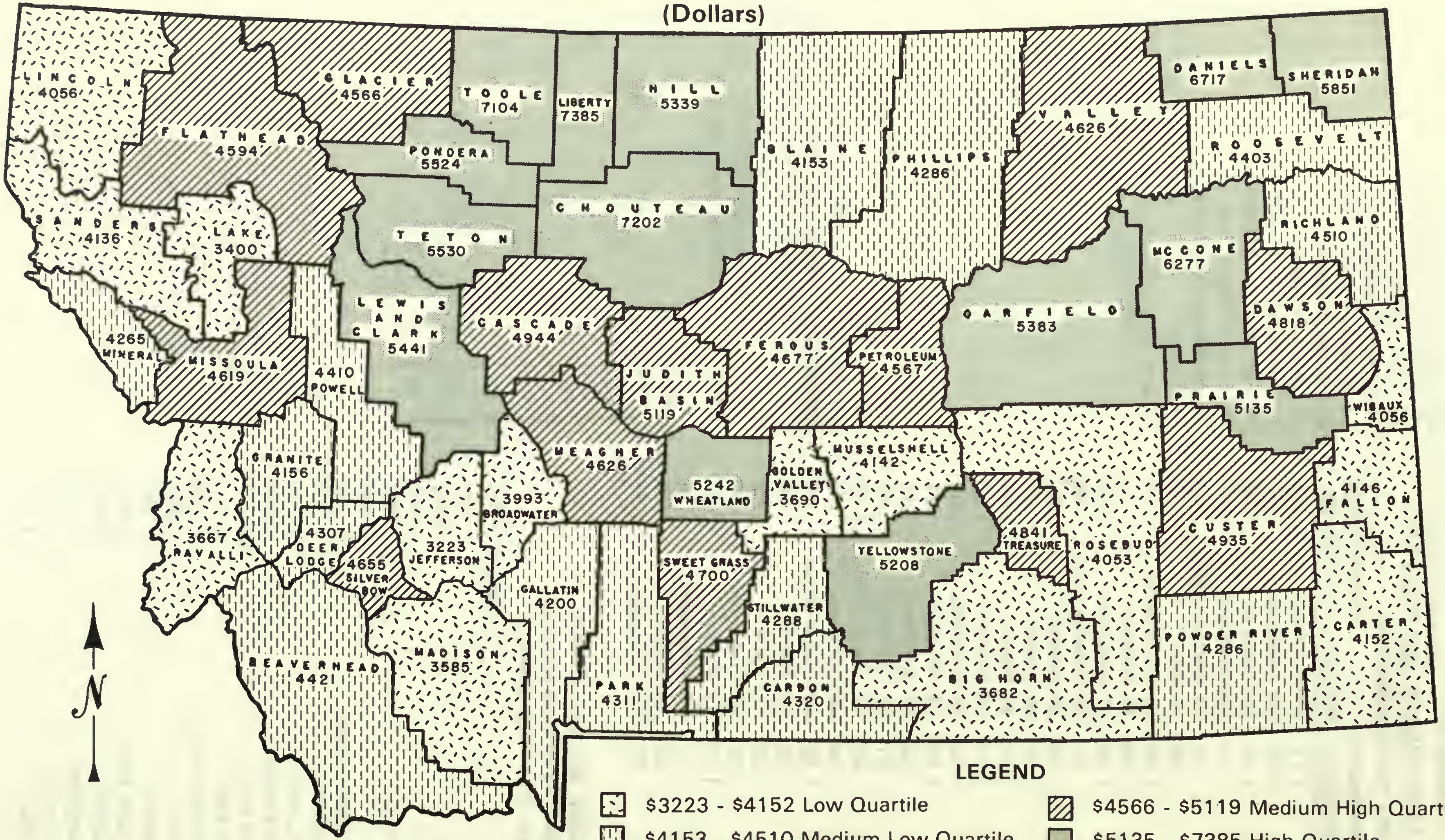
FIGURE A-1

BASIC AND NONBASIC EMPLOYMENT CHANGE (Montana Counties 1969-1979)



SOURCE: Western Analysis, Inc.

MAP A-1
PER CAPITA INCOME 1970-77 AVERAGE
(Dollars)

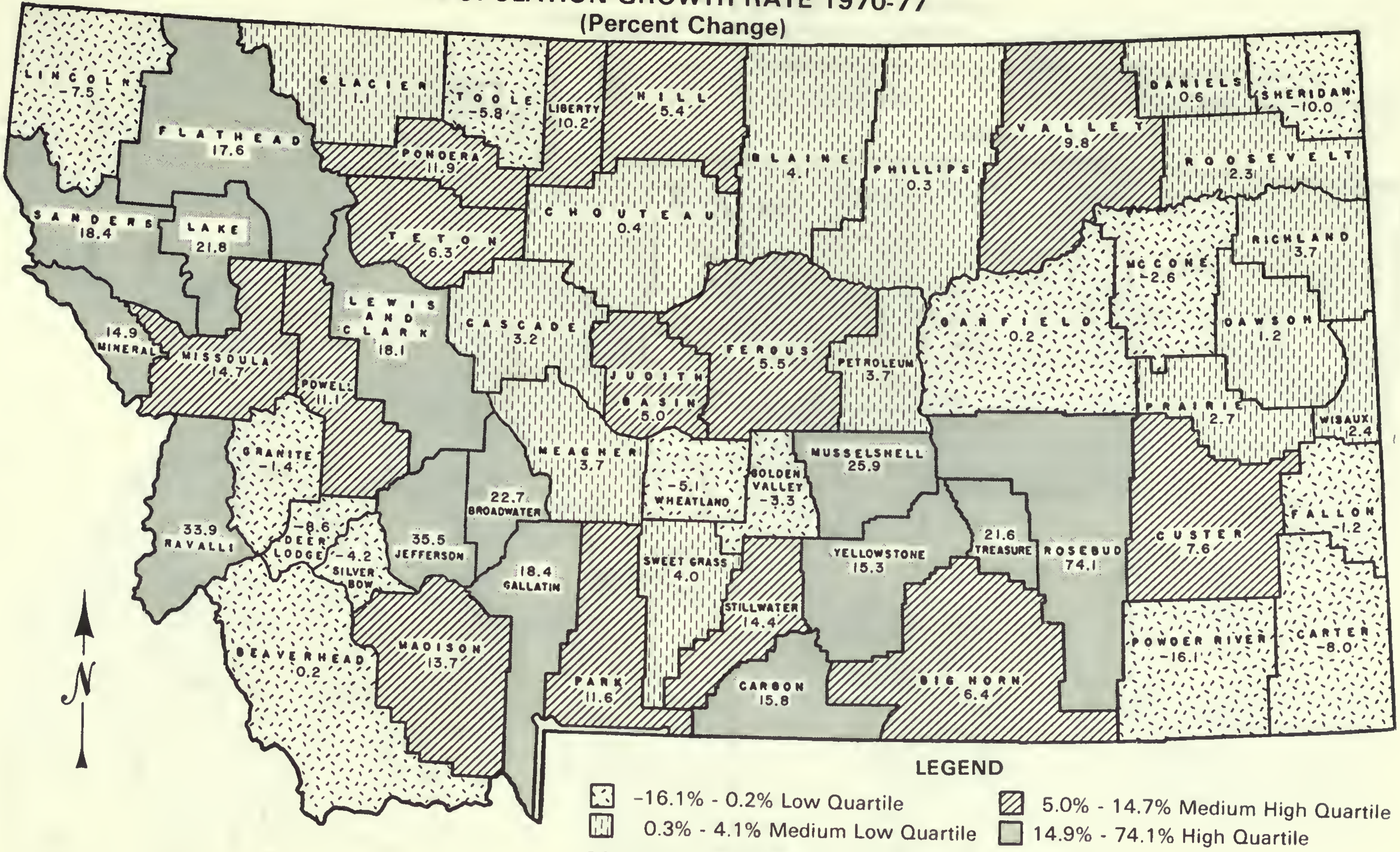


LEGEND

░ $3223 - $4152 Low Quartile
▥ $4153 - $4510 Medium Low Quartile
▨ $4566 - $5119 Medium High Quartile
■ $5135 - $7385 High Quartile

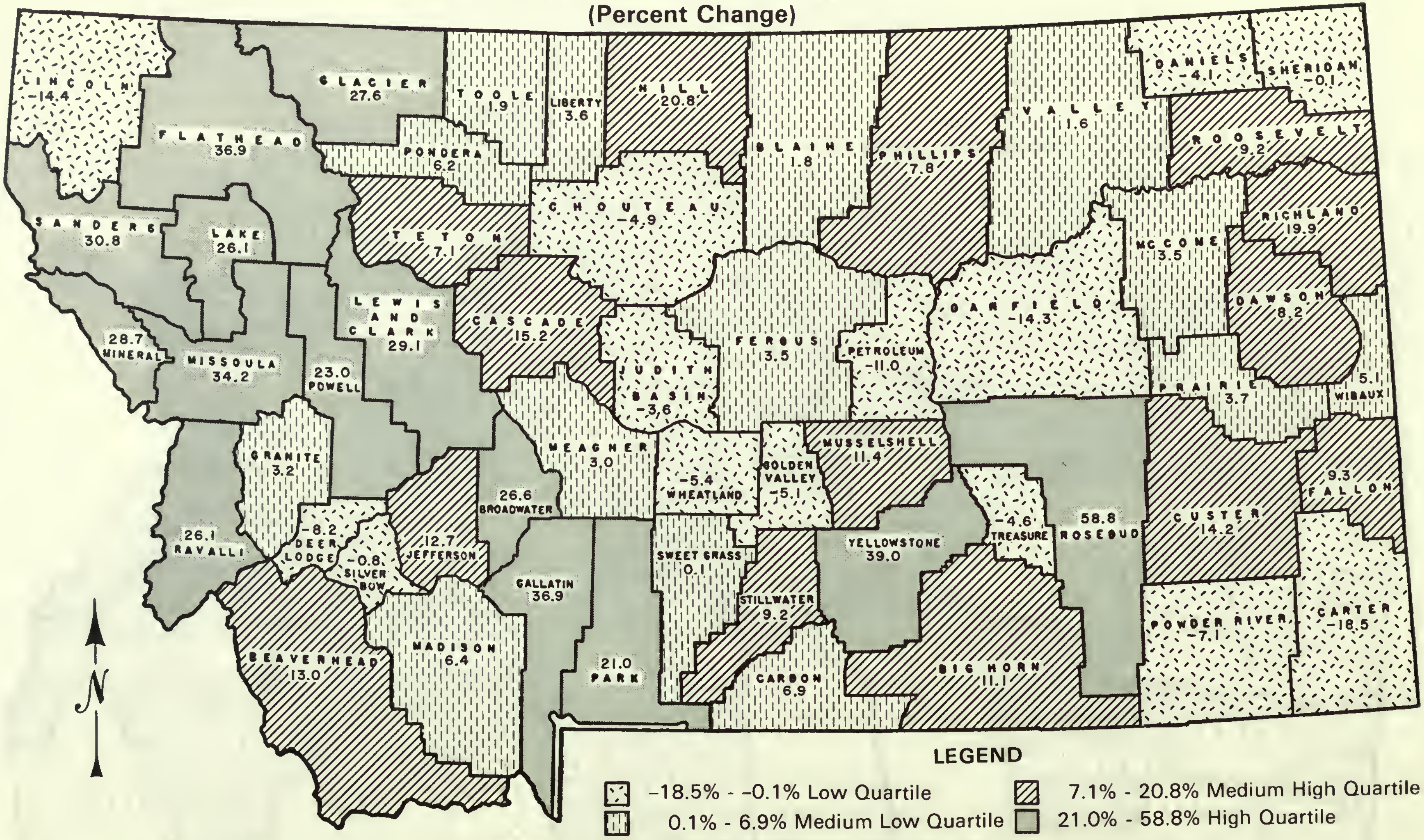
SOURCE: Bureau Economics Analysis
U.S. Department of Commerce

MAP A-2
POPULATION GROWTH RATE 1970-77
(Percent Change)



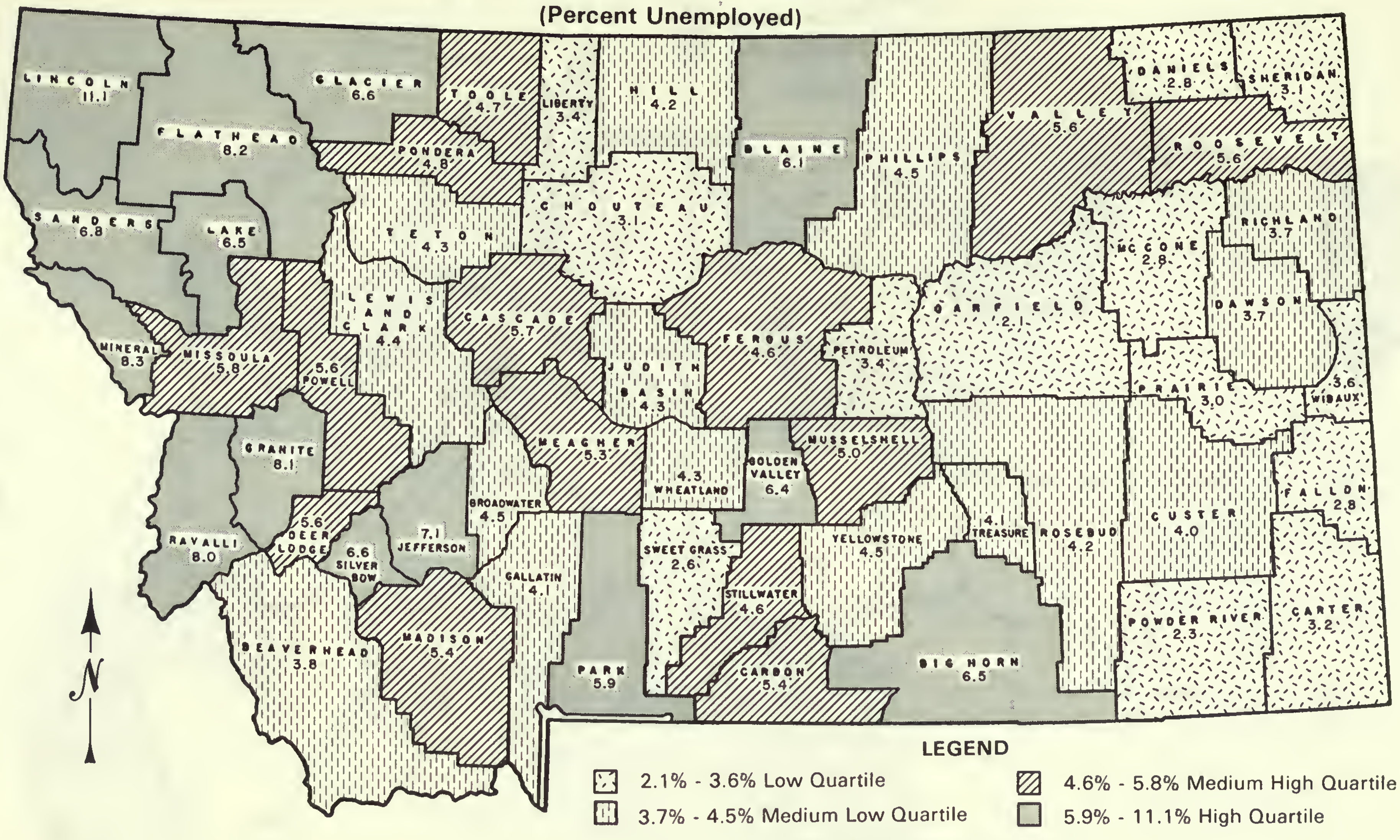
SOURCE: U.S. Bureau of the Census for Population

MAP A-3
EMPLOYMENT 1970-77 GROWTH RATE
(Percent Change)



SOURCE: Bureau Economics Analysis
U.S. Department of Commerce

MAP A-4
UNEMPLOYMENT RATE 1970-78 AVERAGE
(Percent Unemployed)

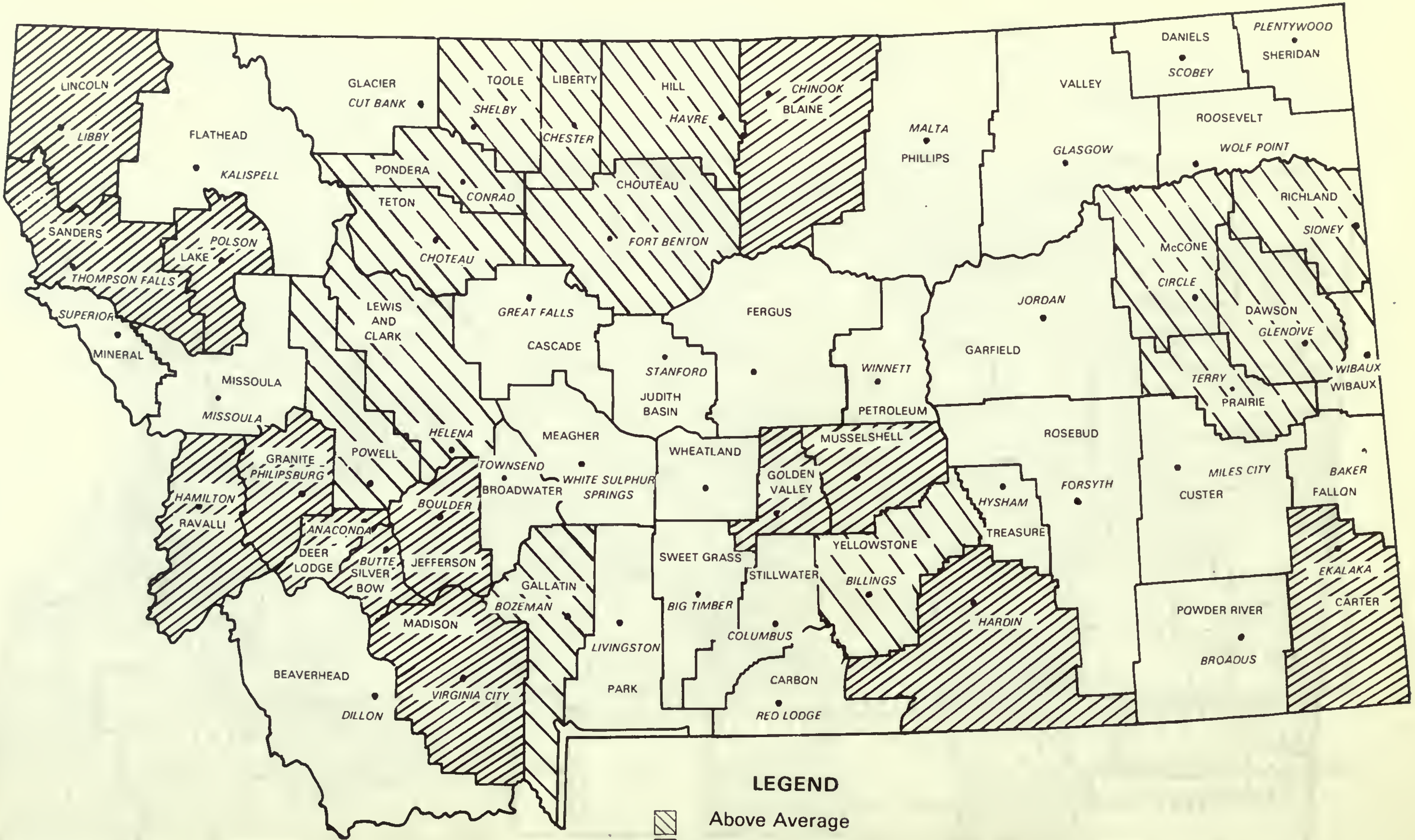


LEGEND

- ⁘ 2.1% - 3.6% Low Quartile
- ▥ 3.7% - 4.5% Medium Low Quartile
- ▨ 4.6% - 5.8% Medium High Quartile
- ■ 5.9% - 11.1% High Quartile

SOURCE: Montana Department of Labor & Industry

MAP A-5
COMPOSITE COUNTY ECONOMIC INDEX*



LEGEND

▧ Above Average

▨ Below Average

☐ Average

SOURCE: Western Analysis, Inc.

*NOTE: Includes unemployment, income, employment and population growth.

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